QuickStudy: ActiveX
Its major flaw is its platform dependency. **28**

Witness shuffle
Lawyers plan Microsoft deposition strategy. **4**

No telling with telcos
Carriers promise to be ready for 2000 but won't give details. **41**

COMPUTERWORLD

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SPECIAL REPORT

Customer Relations

Done well, IS can enhance the customer experience with efficiency, convenience and even some personalization. Companies such as Wachovia Corp., Peapod, Inc. and Charles Schwab & Co. have taken the concept to new levels by nurturing customer loyalty. Done poorly, the same technology can frustrate valued customers with botched orders and bills, endless telephone menus, rigid procedures and buggy interfaces. All of this quietly erodes the bottom line. Turn that – and your own career – around by designing systems from the customer's point of view.
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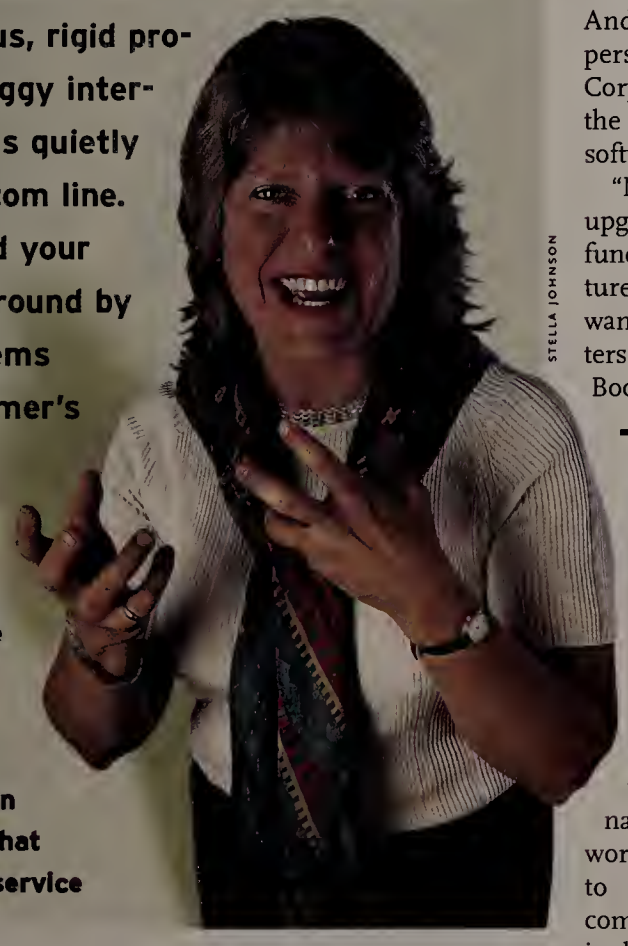

STELLA JOHNSON

Mary Kelley, a vice president at Charles Schwab, says a good customer database can dispel the myths that impede customer service

Retail user groups tackle 'bloatware'

BALLOONING SOFTWARE BURDENS BUSINESSES

By Sharon Gaudin and Kim S. Nash

CORPORATE USERS, increasingly frustrated with the ballooning size of applications and operating systems, are taking their troubles straight to the vendors. But sporadic relief is all they're getting so far.

Citing the administrative and financial pressures of bloatware, two retail groups are preparing to take on Microsoft Corp. And other users already have persuaded Lotus Development Corp. and Corel Corp. to trim the fat off their own office software.

"My problem is, I'm forced to upgrade all the time — not for functionality I want, but for features someone [at Microsoft] wanted for me," said Roger Walters, chief information officer at Booz Allen & Hamilton, Inc., a consulting and accounting firm in McLean, Va. "I need to stay current, though, to get good [technical] support. We're rats on a treadmill."

Walters said he visited Microsoft in October to explain why he doesn't want huge operating system software, but the company didn't seem to listen. "[Microsoft is] working in the best interest of Microsoft, and I don't think they listen

Bloatware, page 74

IBM severs Olympic tie

By David Orenstein and Jaikumar Vijayan

IBM won't sponsor or provide IT services to the Olympics after the 2000 Summer Games in Sydney, Australia, leaving the field wide open for other technology vendors to work the Web at the 2002 Winter Games in Salt Lake City.

Talks between IBM and the International Olympic Committee broke down after several months of intense negotiations over how much IBM

IBM, page 75

IT 'out-tasking' on the rise

▸ *Smaller firms join Big Three in consulting mix*

By Julia King

THE SINGLE-SOURCE, megabucks outsourcing deal is dying.

Instead, more information technology managers are cutting "out-tasking" deals and hiring multiple vendors to furnish a growing list of niche services. Everything from hosting World Wide Web sites to monitoring data networks is fair game.

And the lineup of potential providers now extends well beyond the traditional Big Three — Electronic Data Systems Corp., Computer Sciences Corp. and IBM. In fact, it is the newer, smaller and more specialized service providers, such as Keane Corp. and Computer Task Group, that analysts expect to win a bigger chunk of users' service dollars.

This year, for example, UBS

Out-tasking, page 75

Amazon.com, Wal-Mart push Web branding

By Sharon Machlis

TWO OF THE best-known names in retailing, one real-world, the other virtual, moved to expand their electronic-commerce operations last week, in hopes that their successful brands can be leveraged to new categories on the Web.

Bookseller Amazon.com, Inc., one of the premier merchants on the Internet, purchased World Wide Web comparison-shopping firm Junglee Corp. in Sunnyvale, Calif., which devel-

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GENDER BENDER
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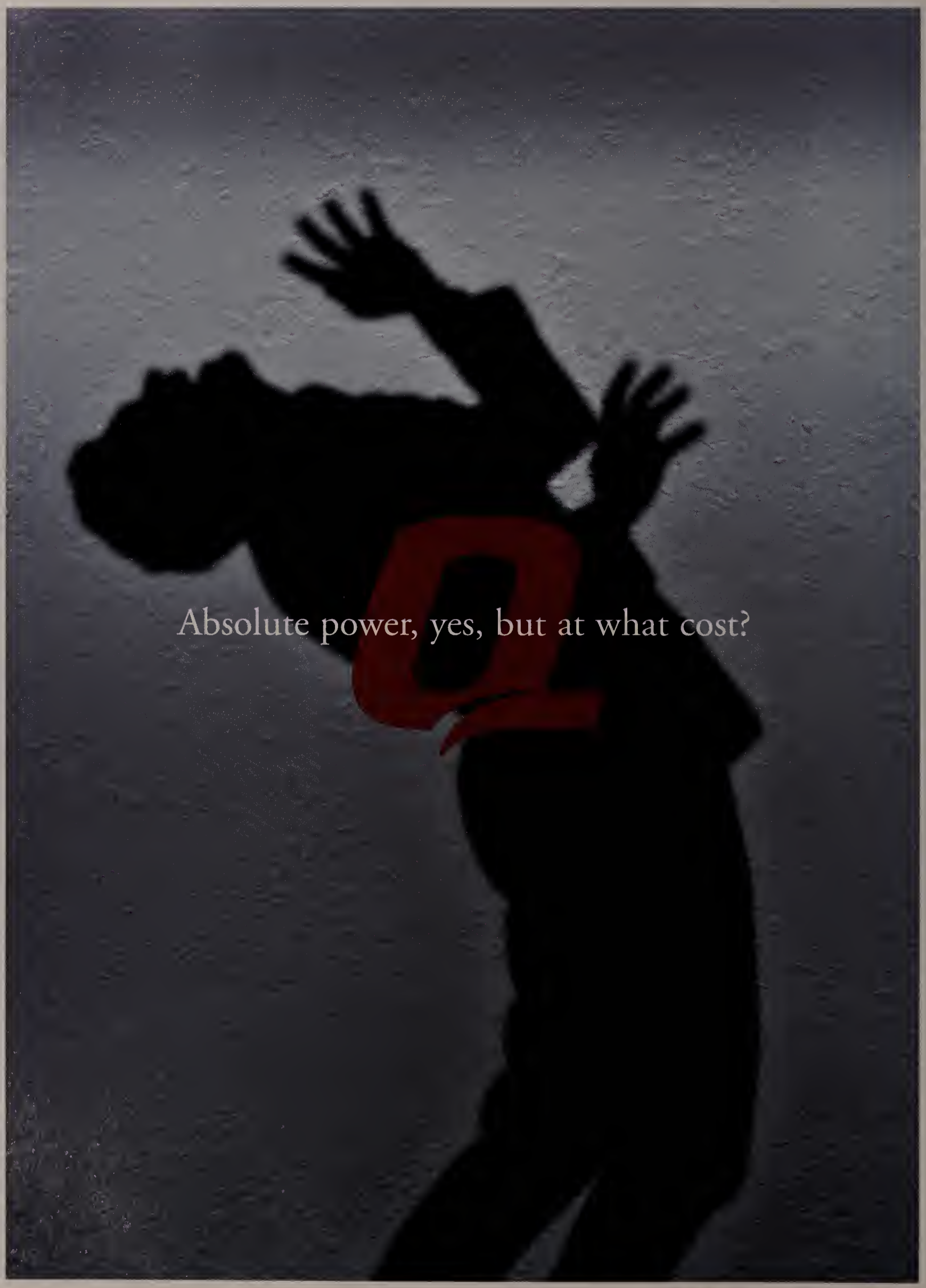
Cranking up Windows NT
Microsoft preps 64-bit version of server system. Page 8

ET TU, EUDORA?
Security hole surfaces in popular E-mail client. Page 14

HP: Unix rules
Hewlett-Packard upgrades Unix portfolio. Page 16

NEWSPAPER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If you want to see the future of IT, Peter Keen says, keep an eye on the gadgets consumers buy. **Special Report, page 56**

A public-minded Web company helps Third World artisans create an international market. **Internet Commerce, page 37**

Ron Inzer at United Natural Foods will automate warehouses to keep food fresh. **Corporate Strategies, page 33**

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FCC claims telcos will be ready for the millennium, but users aren't so sure. **41**

Users move from older mail systems to avoid year 2000 problems. **41**

Hewlett-Packard moves 9.x users toward Y2K-compliant operating environments. **45**

EXECUTIVE Briefing

News summary for senior managers

■ There's nothing better than a satisfied customer and nothing worse than a steaming one who takes his business elsewhere. Technology-driven customer service can give you either. The trick, as companies such as Wachovia, Peapod and Schwab will tell you, is knowing what your customers want. Our Special Report starts on page 51

■ Corporate users are frustrated with the ballooning size of software and the need to buy new hardware for it, but are often forced to upgrade to get good technical support. Users are "rats on a treadmill," according to one CIO. Retailers and users demand relief, but Microsoft and others make no promises to change. Page 1

■ Wal-Mart launched a PC sales effort online last week, and Amazon.com bought companies that may let it become a sales agent for other companies. Both moves show that having a strong brand means you can launch new businesses online, observers say. Page 1

■ Microsoft is picking witnesses this week for what looks like a showdown with the Department of Justice. It has asked the judge to throw out the case, but it appears the defensive maneuvering is almost over and the trial's set to begin — with a judge who's determined not to let the scrapping take 13 years, the way it did with the IBM antitrust suit. Page 4

■ United Natural Foods became the largest distributor of natural food products in the U.S. by buying up the competition. That left it with eight warehouses with different methods of tracking products and preparing orders — a situation it will fix with standard warehouse management software. Page 33

■ Companies moan about a labor shortage that leaves their IS jobs unfilled, but some techs complain that age discrimination and employers that are too picky about the mix of skills they want leave good programmers out of work. Page 6

■ Women equal the male presence on the Web and have surpassed the number of male America Online members for the first time. Women buy three times as much as men, so electronic-commerce sites are taking notice and taking steps to attract them. Page 6

■ Popular home banking programs are going the way of ATM fees. Banks often charge more to use their cash machines if you aren't a customer. Similarly, they're raising fees for online customers who use commercial (that is, nonbank) software for account management. What's next? Page 37

■ Put your company name in a search engine and you get . . . what? If you're a big company, a keyword search on most search engines will put your home page first. But a *Computerworld* experiment shows that not all searches and engines are created equal, for reasons of logistics as well as malicious intent. Page 37

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MICROSOFT ANTITRUST CASE

Witness-calling strategies key to Microsoft trial

▸ *Company and government maneuver within judge's limits*

By Kim S. Nash

NEWS ANALYSIS

EACH SIDE is allowed only 12 witnesses. So decisions by Microsoft Corp. and government lawyers about who gets precious courtroom time could have a major effect on the outcome of their upcoming antitrust trial.

The selection process is a mix of shrewd legal strategy and courtroom psychology.

Not only must each side work within strict bounds set by U.S. District Judge Thomas Penfield Jackson, but the parties also must try to anticipate whom the other side will call and how to outflank him.

KIM KULISH/SABA

Government lawyers will depose Microsoft CEO Bill Gates for two days this week

The Sept. 8 trial "will be quite a scene to watch," said Hillard Sterling, an antitrust lawyer at Gordon & Glickson in Chicago.

Testimony must be submitted beforehand in writing, saving in-court time for cross-examinations only, Jackson ordered in June. He apparently wanted to avoid having the case reach the proportions of IBM's 13-year antitrust battle, during which 974 witnesses produced 104,000 pages of testimony [CW, March 2].

Neither Microsoft nor the Justice Department and 20 states lined up against it has released an official witness list; that will come Sept. 3.

But Microsoft last month drew up a private list of 30 possible witnesses to make its case against the governments' requested preliminary injunction, according to a lawyer close to the case. Those same people could be potential witnesses at the trial, the lawyer said.

Microsoft and U.S. Department of Justice officials declined to comment about witness strategy.

Although actual testimony is confined to 12 people, both sides can build a much larger pool if the dozen they call are identified in advance, said Charles Rule, a former Justice Department antitrust chief who consults for Microsoft.

Microsoft, the Justice Department and the states have been arguing for the past two weeks about who from Microsoft will be deposed by government lawyers (see story below). Depositions are formal interviews that are part of the evidence-gathering process and aren't a guarantee of being called as an in-court witness.

But it may be non-Microsoft witnesses who most influence the case, said Rich Gray, an antitrust and intellectual property lawyer at Bergeson, Eliopoulos, Grady and Gray LLP in San Jose, Calif.

Two of the major themes Microsoft should highlight are how ruthlessly competitive the software industry is and how bad it would be to have government intervene in how products are designed, Gray said.

Those are messages best conveyed by expert witnesses from noncommercial groups such as academia or think tanks, he said. "Courts assume a higher degree of intellectual honesty from someone who is outside the company," Gray said.

Both sides will also provide "fact" witnesses. Unlike experts who talk theory and draw broad conclusions, fact witnesses testify about firsthand knowledge of specific events.

For example, the Justice Department wants to depose four Microsoft employees who attended a June 1995 meeting with Netscape Communications Corp. Those employees could be called to testify about the meeting and whether, as is alleged, Microsoft tried to collude with Netscape to divide the Internet software market.

Government lawyers may use up several of their 12 witnesses by calling people to the stand specifically to introduce E-mail written by Microsoft officials into evidence, said Terry Moritz, head of the litigation department at Goldberg, Kohn, Bell, Black, Rosenbloom & Moritz Ltd. in Chicago. □

LOOK WHO'S TALKING

Along with seven other Windows and Internet Explorer managers, these Microsoft officials face depositions:

EXECUTIVES

- Bill Gates, CEO
- Steve Ballmer, president
- Jim Allchin, oversees operating systems
- Paul Maritz, oversees product development

Paul Maritz

KEY BUSINESS AND MARKETING MANAGERS

- Joachim Kempin, oversees product licensing to PC makers
- Brad Chase, heads Windows marketing
- Cameron Myhrvold, manages marketing of Internet Explorer to Internet service providers

Brad Chase

Summary judgment sought

By Kim S. Nash

MICROSOFT CORP.'s plan to ask today that parts of the antitrust lawsuit against it be decided by the judge — without trial — is part of a strategy to chip away at the governments' charges.

It is an aggressive tactic that may not prevail, one lawyer said. Meanwhile, Microsoft lost on two other points debated in a hearing last week, including one in which it will be forced to hand over Windows source code to the government.

Lawyers for the Redmond, Wash.-based vendor plan to file a motion for summary judgment on a key part of the case against it: the accusation by the Justice Department and 20 states' attorneys general that Microsoft illegally tied its Internet Explorer browser to the Windows operating system to stomp out competition.

EARLY DECISION

That isn't a motion to dismiss the case. Rather, Microsoft will argue that some of the facts of the case are agreed upon by both sides and therefore the judge can decide some issues — or perhaps the entire case — before the trial starts, said Rich Gray, a lawyer at Bergeson, Eliopoulos, Grady and Gray LLP in San Jose, Calif.

Microsoft plans to cite a favorable U.S. Court of Appeals ruling in a related case that said, in essence, that Microsoft's Windows 95 and Internet Explorer are legally integrated, company officials said [CW, June 29].

"But there are a lot of facts very heavily in dispute," Gray said. "I'm 99.9% sure that this motion will not prevent the case from going to trial."

The move is part of a larger plan to peck away at the suit. For example, Microsoft last month tried to get the state charges thrown out on grounds that Microsoft's products are protected by federal copyright [CW, Aug. 3]. That counterclaim is still pending.

Microsoft announced its intention to call for summary judgment at a hearing last week, where it wrangled with government lawyers over other issues, such as how to safeguard the Windows 95 and Windows 98 source code the government requested and whether Microsoft CEO Bill Gates should be deposed for one day or two.

The vendor lost on both counts. U.S. District Judge Thomas Penfield Jackson ordered Gates to make himself available for the two days the government had requested. Gates is scheduled to be deposed in Washington Wednesday and Thursday, a Microsoft spokesman said.

The U.S. Department of Justice request to depose 16 other Microsoft employees also was granted. In the source code debate, Microsoft wanted to stipulate that anyone seeing the secret code could not work on operating systems products at rival companies for 12 to 18 months after the trial. The Justice Department called the proposed restriction "oppressive," and Jackson agreed.

However, people who view the source code will be bound by the court not to abuse it, lest they face jail time. □

MARK YOUR CALENDAR

Upcoming dates in the Microsoft case

Aug. 10 Microsoft to file a response to the DOJ and states' motion for a preliminary injunction

Aug. 12-13 Microsoft CEO Bill Gates slated to be deposed by government lawyers

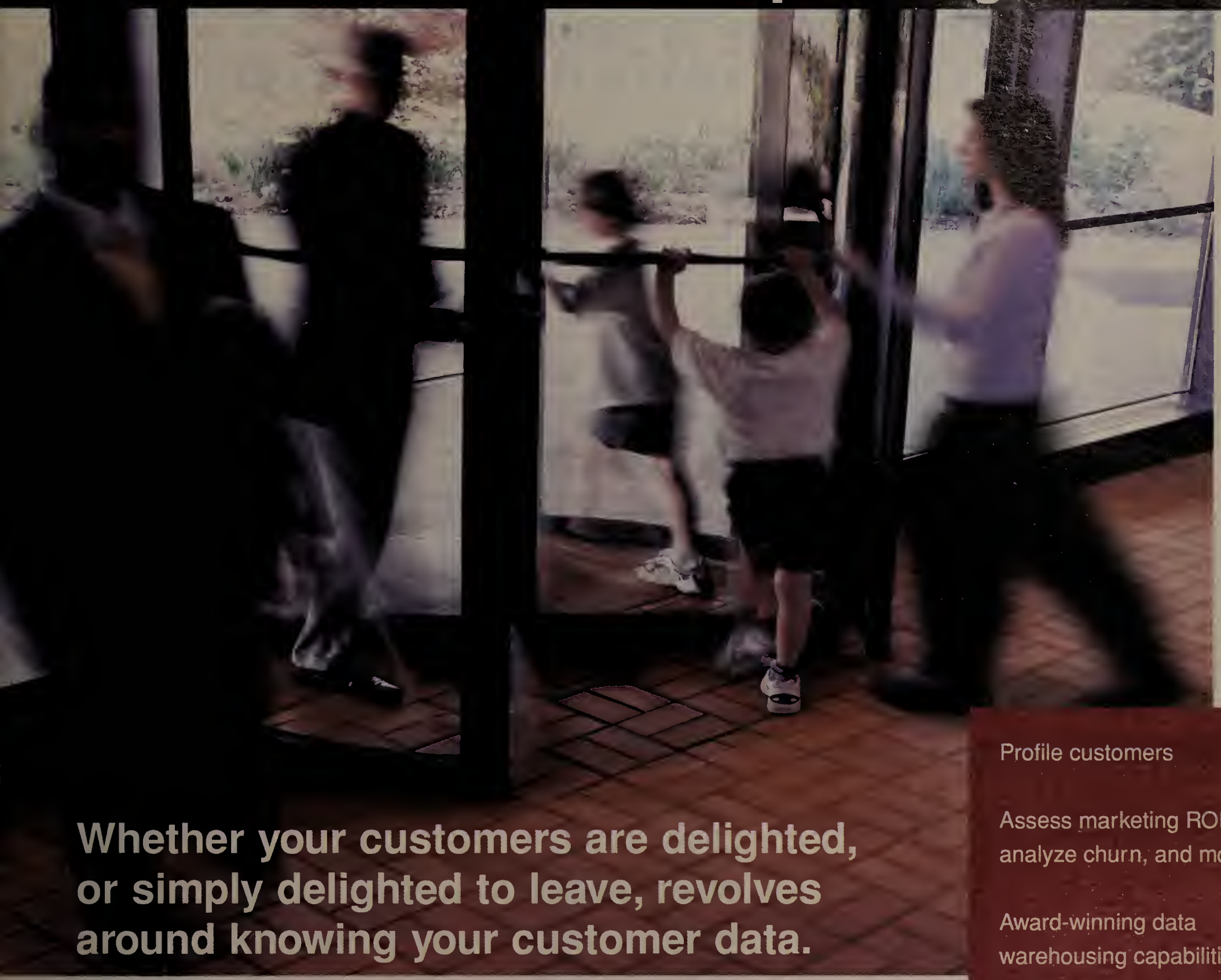
Aug. 19 The governments and Microsoft to file final pretrial statements

Aug. 24 The governments to file final argument for preliminary injunction

Sept. 3 Last – probably – pretrial hearing

Sept. 8 Trial begins

Customer Relationship Management



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IT labor boom a mirage to some

Industry vets debate need for worker visas

By Barb Cole-Gomolski

DON'T TELL William Spence about the IS labor shortage. For 18 months he has tried unsuccessfully to land a programming job.

After being laid off from his research job at Stanford University, Spence, 47, thought he could turn his passion for programming into a new career. He was wrong.

Some information systems professionals are being left out of the information systems labor boom, perhaps because they are perceived as too old, too expensive or lacking today's hottest skills.

Unemployment among IS professionals over 50 is about 17%.

GREGG MATTHEWS

Veteran IS manager Linda Kilcrease says she and 250 of her colleagues were laid off in favor of foreign contract workers

Linda Kilcrease, a veteran IS manager now employed by a large manufacturing firm in New Jersey, said she thinks the IS labor shortage is bunk. Kilcrease and 250 of her associates were laid off in 1994 by American International Group, Inc. (AIG), an insurance giant in New York. Kilcrease said the IS team was replaced with foreign contract workers, who were in the U.S. on H-1B visas.

"The company bragged about how it would save $11 million by doing this," she said.

AIG officials said the company outsourced the management of most of its applications to contractors in 1994 in order to save money but declined to comment further.

"The only shortage is one of cheap labor," said Norm Matloff, a computer science professor at the University of California at Davis. Matloff is a vocal critic of a report issued by the Information Technology Association of America, a trade group in Arlington, Va., that puts the number of open IS jobs at about 346,000.

According to Matloff, companies have hyped the labor shortage to get Congress to raise the annual cap on the number of visas issued to skilled foreign workers.

The ITAA said its research shows that 10% of IS jobs are currently open. It claims that companies are having trouble filling jobs because applicants don't have the required skills.

Matloff said abuses of the H-1B program — it is supposed to be reserved for highly specialized skills that aren't readily available in the U.S. — are adding to the woes of people such as Spence. Age discrimination and the increasing pickiness of employers also are making it hard for some IS professionals to find work, Matloff said.

Recruiters said that generally job prospects for IS workers are good. But the best offers are going to younger applicants who have hot skills in areas such as enterprise resource planning applications, said Celine Bundy, senior counselor at Technical Connections, a Los Angeles-based IS placement firm.

"If you are not skilled in the hot technologies, you better get reskilled," said John Davis, president of John J. Davis & Associates, an IS executive placement firm in New York. "Companies are not going to wait around for workers to get up to speed."

That is a lesson Ed Curry, 39, learned the hard way. Curry thought he was so marketable that when he closed his computer engineering consultancy in 1996, he rewarded himself with a month off. But when he sent out resumes, nobody was biting.

Last year, he got only five months' worth of contract work as a software engineer. This year, he has logged about four months of contract work.

The experience of being unable to land a permanent IS position shocked Curry, who said he is proficient in seven programming languages. His conclusion: Companies don't want to pay for his experience.

"I've had headhunters tell me that it would take them too long to find me a job," Curry said. "They don't want to waste their time on me when they can place entry-level people immediately." □

MOREONLINE

For resources on immigration, H-1B visas and perspectives on the IT labor shortage, visit *Computerworld online.*

www.computerworld.com/more

Women gaining notice of online retailers

By Sharon Machlis

THE GENDER CYBERGAP quietly narrowed this summer when the nation's most popular online service, America Online, Inc., found it has more female members (52%) than males.

That's a staggering change from four years ago, when 16% of AOL members were female, and yet another sign of women's growing presence on the 'net. RelevantKnowledge, Inc. in Atlanta estimates that 46% of current adult World Wide Web users are women.

VENDOR SCRAMBLE

Aiming to attract female surfers, top 10 portal player Lycos, Inc. has made deals, which will be announced today, with women's content sites Women.com Networks and Village.com in New York. And The Estee Lauder Cos. in New York has announced plans for a major electronic-commerce site for Clinique beauty products this fall.

"I think you're going to see more women's categories going online," said Rob DeSisto, an analyst at Gartner Group, Inc. in Stamford, Conn.

The increase in female Web surfers could be good news for electronic-commerce sites.

"Women buy three times as much in remote [mail or phone order] clothing purchases than men in traditional channels," said Nicole Vanderbilt, an analyst at Jupiter Communications, Inc. in New York. "We believe that category has been waiting for women to come online."

Online players trying to tap in to that market are looking to offer products, news and shopping environments likely to appeal to a female audience.

"The content is as important as the shopping opportunity," said Marian Salzman, an analyst at Young & Rubicam, Inc.'s Brand Futures Group in New York. "Commerce is just an extra for them." Women find online communities attractive — not only chat rooms and bulletin boards, but areas such as those Amazon.com has developed for users to write reviews about books they read, Salzman said. Male users are also drawn to communities, she said.

Web retailers are also trying to develop features that are likely to appeal to women. For example, The Gap, Inc.'s Web site offers "Virtual Style," where men and women can mix and match outfits. But DeSisto said that's more interesting to women, who care about mixing and matching when shopping in physical stores as well. □

Where the women are

Popular Web sites with the highest proportion of female users, July 1998

QVC.com	76.5%
Valuepage.com	76.2%
CBS.com	73.7%
NBC.com	72.6%
HomeArts.com	70.9%
Uproar.com	68.9%
Careermosaic.com	68.1%
Rootsweb.com	68.0%
Rent.net	65.7%
Ivillage	65.4%

Portion of total audience, as measured by unique visitors, made up of women 18 years and older. Only sites that receive a minimum of 0.7% total Web traffic are included.

Base: Study of 6,500 at-home Web users

Source: RelevantKnowledge, Inc., Atlanta

Telco strike threatens customers

By Tom Diederich and Matt Hamblen

OFFICIALS FROM two major phone companies and union representatives hoped to avert a strike set to begin yesterday that could hit customers along much of the East Coast.

"The impact of a strike will be felt by every customer — business or residential," said Jeffrey Kagan, an analyst at Kagan Telecom Associates in Atlanta.

The Communications Workers of America (CWA), Bell Atlantic Corp. and BellSouth Corp. had an 11:59 p.m. Saturday deadline to agree on a three-year contract. "It looks like bargaining is going to go down to the wire," Jeff Miller, a CWA spokesman, said last week.

The CWA represents 73,000 workers at Bell Atlantic, 48,000 at BellSouth and 36,000 at US West, Inc., about half the total of employees in each case.

Miller and Kagan said customers wouldn't lose phone service but could have problems getting services such as installation, repair or operator assistance, depending on the length of the walkout.

At issue for the CWA is a shift in union jobs to the companies' nonunion subsidiaries. That prevents union members from having access to "new growth jobs" — those related to the Internet and to wireless and multimedia technologies, Miller said. The union also wants to curb the "excessive, forced overtime" that it claims is a result of long-term, industrywide downsizing, he added.

But Kagan said the CWA is part of the problem. "It's a clear indication that unions can become the albatross around the neck of a company that needs to be nimble in this market. The workers at new companies like Qwest [Communications International, Inc.] and others bring a different mind-set to market. They do whatever it takes to get the job done," Kagan said.

Some 10,000 members of the International Brotherhood of Electrical Workers were also poised to strike. But a spokesman said he was confident an agreement would be reached.

An Aug. 15 strike deadline is set for 40,000 CWA workers at Englewood, Colo.-based US West, which provides phone service to the northern Midwest, Rocky Mountain and Northwest states. □

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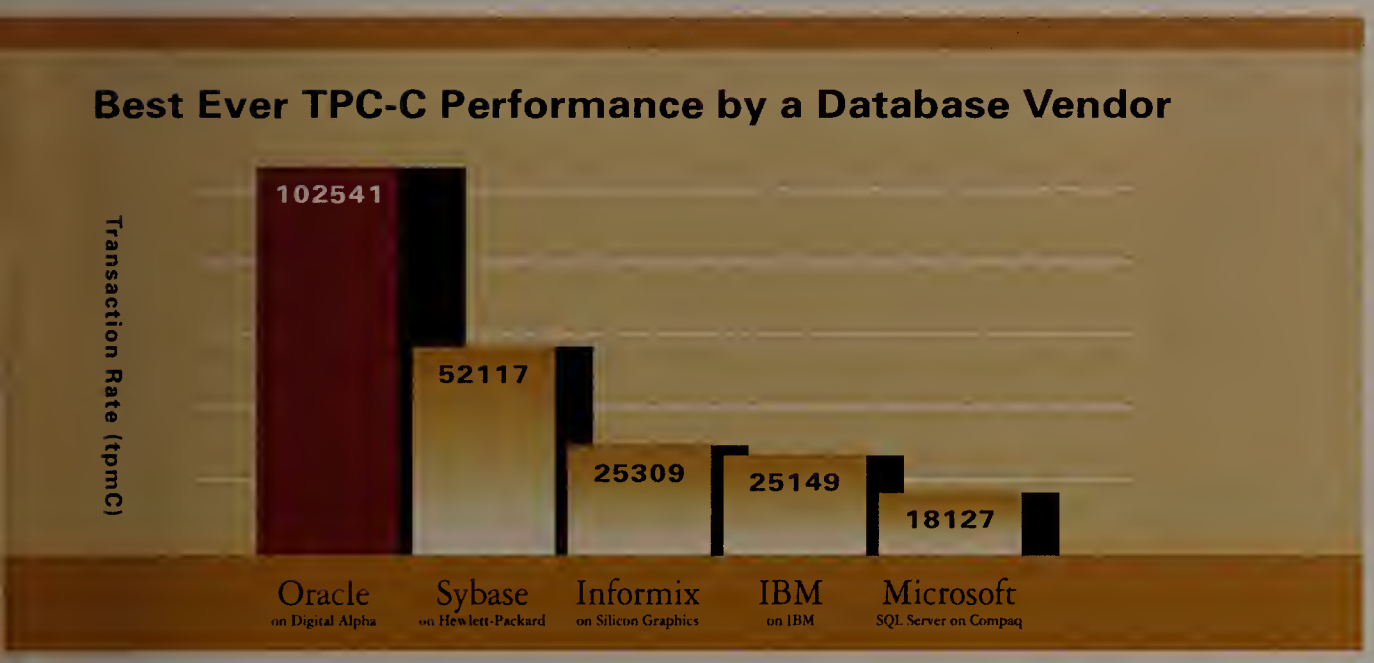

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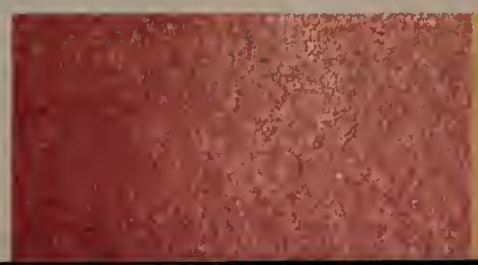

Microsoft focuses on 64-bit OS

By Sharon Gaudin

WORRIED ABOUT BEING the last one out with a 64-bit operating system, Microsoft Corp. is working on the more powerful and faster version of its Windows NT operating system.

By the time Microsoft comes out with it, users will probably need it. Ed Muth, group product manager for NT, said he expects that the next major release of NT after Version 5.0 will be a 64-bit version.

Although users have been expecting NT 5.0 for more than a year, no official release date has been set. It is generally expected anywhere from mid-1999 to sometime in 2000. Microsoft plans an intermediate NT release the year after NT 5.0 is shipped, and the 64-bit version is slated to ship the year after that, Muth said.

But waiting until 2001 or 2002 for a 64-bit version of NT may be OK for many users — who said they probably won't need it for at least that long.

"The reality is that a huge amount of American business runs on 16-bit and not even 32-bit," said Ed McDonald, chief architect at Texaco, Inc. "Not just us, but the whole world seems a few years away from using a true 32-bit majority."

A 64-bit system was designed to run twice as fast as its 32-bit counterpart by processing twice as much information in the same amount of time. Windows NT went from 16-bit to 32-bit about five years ago.

Microsoft is trying to keep up with Intel Corp., which is working on its Merced chip with Hewlett-Packard Co., probably for delivery in late 1999 or 2000. Both companies remain tight-lipped about the chip's expected speed and performance.

But industry watchers are looking for 64-bit NT and the Merced chip to combine for a big boost in speed and memory — which would boost Microsoft's efforts to move NT into competition with 64-bit Unix machines in corporate data centers.

The potential for additional horsepower sounds good to Paul Soares, senior vice president of Alden Buick-Pontiac-GMC in Fairhaven, Mass. "If you're going to get a bigger-laned highway to run your applications over, that's absolutely a good thing," said Soares, who also is a member of the GMC Access Council, which runs the computing network that ties the dealers into corporate headquarters. "It'll be a good thing once you get there, but there's that transitional phase."

Alden Buick-Pontiac-GMC's Paul Soares: The extra horsepower will be a good thing

Soares and other users said they are concerned about moving to a 64-bit operating system while still running 32-bit applications. Soares estimated that he would have to spend an extra 25% of his information technology budget just to buy 64-bit applications to replace 32-bit versions. And that doesn't even include the cost of upgrading hardware to handle the more powerful software.

Muth said he expects that 32-bit applications will run on a 64-bit operating system, but they will run in 32-bit emulation — which could slow them down. "We see 32-bit coexisting with 64-bit for a long time. I expect to see us selling 32-bit servers in 2010," Muth said.

Randall Kennedy, an analyst at Competitive Systems Analysis, Inc. in Danville, Calif., said Microsoft's next 32-bit release of NT is what will continue to be on his and others' minds. "How much time [is Microsoft] wasting prepping for 64-bit when they can't get NT 5.0 out the door?" he said. □

& On the NT 5.0 front, users await the upgrade's better security. Page 41

IT plays key role in acquisition

By Thomas Hoffman

ALBERTSON'S, INC.'S BID to succeed as the nation's largest supermarket chain will hinge on whether the grocer can continue to exploit information technology to remain one of the industry's most efficient operators, analysts said.

Last week, the Boise, Idaho-based grocer agreed to acquire Salt Lake City-based American Stores Co. for $8.4 billion in stock. The deal, which both company boards have approved, would vault Albertson's past Kroger Co. as the biggest supermarket chain in the U.S., with more than 2,400 stores across 37 states and nearly $36 billion in total sales.

Albertson's is viewed as one of the most cost-effective operators in the grocery industry. For example, even though American Stores last year had sales of $19.1 billion, roughly 20% higher than Albertson's, its net income was only about half that of Albertson's (see chart).

The firm's technological innovations, such as its May pilot of Secure Electronic Transaction tests with BankAmerica Corp. to process credit-card transactions over the Internet "have led to those efficiencies," said John Rogers, a retail analyst at D. A. Davidson & Co., an investment bank in Portland, Ore.

THE ASSOCIATED PRESS

Analysts say grocery chain Albertson's needs to stay on top of IT innovations to make American Stores more efficient

Last summer, Albertson's was involved in an electronic-commerce pilot code-named Link with Pepsi-Cola North America in Somers, N.Y., that was intended to automate product distribution and "squash the supply chain" by electronically synchronizing product pricing.

Analysts said they hope Albertson's can use that kind of IT innovation to improve on American Stores' relative inefficiency and add to the $200 million in administrative and computer systems consolidation savings that company executives predict will result from the marriage of the two outfits.

But consolidation of systems could be a problem. American Stores has had trouble centralizing operations among its three grocery divisions: Lucky, Jewel and Acme. The project, intended to meld office and warehouse operations, failed to deliver the kind of positive bottom-line benefits that were expected in the second half of last year, analysts said.

For its part, American Stores has upgraded its pharmacy inventory management system and replaced the front-end point-of-sale systems used at its Jewel-Osco supermarket/pharmacy outlets.

Supermarket chains are making more sophisticated use of inventory management systems to better track the cost of items through the sales cycle "and better understand the profitability of an item and how effectively an advertising promotion worked," said Cathy Hirsh, a vice president at American Management Systems, Inc. in Fairfax, Va. □

American Stores Co.
Fiscal 1998 revenue - $19.1B
Fiscal 1998 net income - $281M

Albertson's, Inc.
Fiscal 1998 revenue - $14.7B
Fiscal 1998 net income - $517M

Source: Company financial reports

SEC releases Y2K guidelines

By Thomas Hoffman

THE SECURITIES AND EXCHANGE Commission (SEC) last week released guidelines urging public companies to disclose more details about their year 2000 projects, including costs and contingency plans.

The new reporting guidelines for 10-Q and other financial statements are a response to criticism that most company disclosures have been vague and uninformative. Public companies are required under SEC rules to disclose year 2000 costs if they have a "material" impact on operations.

The SEC move, which had been expected [CW, Aug. 3], drew a mix of concern and support from year 2000 project managers and information systems executives.

"Anything that creates more work for us to report on the status of the project is a bit of a nuisance," said Joe Ares, year 2000 project manager at MarketSpan Corp., a Brooklyn, N.Y.-based utility.

Still, Ares acknowledged that the new SEC requirements "are in the best interests of our shareholders and our customers."

To date, the SEC has received year 2000 disclosures from more than 1,000 publicly traded companies. But an SEC task force found that "many companies are not providing the quality of disclosure that we believe investors expect," according to a report on the new guidelines (available at *www.sec.gov*).

"The actual disclosures being made are all over the map," said Lou Marcoccio, an analyst at Gartner Group, Inc. in Stamford, Conn.

A LITTLE PUSH

The SEC's more detailed guidelines call for a company to disclose its state of readiness for year 2000, its year 2000-related costs and its contingency plans for failures. Marcoccio said the SEC pressure may force companies that haven't been tracking the progress of their year 2000 projects to begin doing so.

Others said the SEC requirement for solid cost accounting is just good management. "If you're not going through a thorough assessment of the costs, then you're putting your [company] at risk for not being ready for everything that can come up," said Michael P. Leach, chief financial officer at Drug Emporium, a Powell, Ohio-based discount drug chain. □

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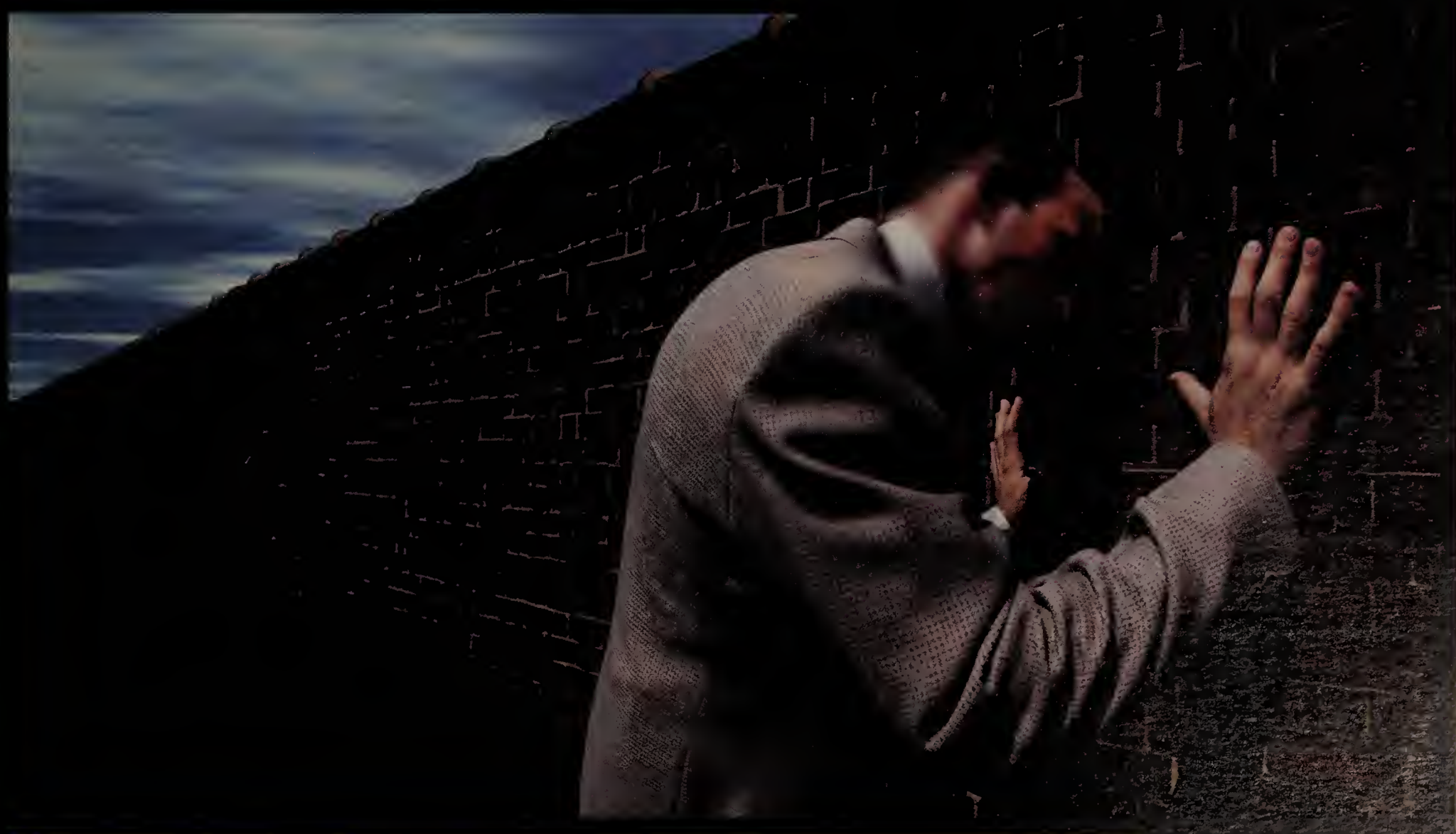

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Calling all truckers: Telcos offer long-distance break

By Matt Hamblen

WHY WOULD A LONG-HAUL trucker give a hoot about which pay phone he uses at a truck stop?

He might not, but maybe his boss would. The nation's 1,800 long-haul trucking companies depend heavily on 800 numbers so their drivers can keep in touch from truck-stop pay phones. But last fall, Federal Communications Commission regulations let pay phone companies charge long-distance phone customers 28.4 cents for each call to their toll-free number from a pay phone.

The fee, called a Dial Around Compensation charge, can cost a trucking company thousands of dollars each month. However, SmartStop, Inc., a Portland, Ore.-based phone company, will soon offer another option using a network provided by Lucent Technologies, Inc. in Warren, N.J., and AT&T Corp. in Basking Ridge, N.J.

SmartStop and Lucent are replacing pay phones in hundreds of truck stops nationwide with phones that route calls directly to long-distance carrier AT&T, bypassing the local telephone company and the Dial Around charge.

The reduced network costs can be shared with truck-stop operators, such as Ambest, Inc. in Brentwood, Tenn., a truck-stop cooperative that has signed a five-year contract with SmartStop and has begun to replace pay phones at its 130 stops in 42 states and Canada. There are more than 2,200 large truck stops nationally that SmartStop would like to serve.

Ambest's Bob Lee: Calls with SmartStop smart cards will cost truckers 6 to 12 cents per minute, down from 19 to 25 cents now

To access the phones, truckers will have the option of using smart cards that carry information about both truck and driver, including vehicle and license numbers, and records of fuel or equipment purchases. Drivers could use the cards' prepaid phone credits to pay for diesel, showers and other truck-stop services or to access automated teller machines for cash, Ambest President Bob Lee said.

So far, Ambest has about a third of its truck stops equipped with new phones that customers use with normal keypads; the smart cards won't be available until next year.

Lee said he expects prepaid phone calls with the SmartStop smart cards to cost 6 cents to 12 cents per minute, down from the current cost of 19 cents to 25 cents per minute on conventional prepaid calling cards, which truckers also use heavily.

Lee said he has heard positive reaction to the cost savings from trucking companies, but he acknowledged that some drivers have been skeptical of the concept.

"In many cases, the drivers are thinking, 'You're going to catch me, and there's something I'm not seeing,' " Lee said.

Terry Atkins, a fuel director at M. S. Carriers, Inc. in Memphis, said truck companies "don't want to pay the [28.4 cents for Dial Around Compensation], but we also understand you can't get something for nothing." He said he suspects that SmartStop could make out with hidden fees.

Atkins estimated that his company, with 3,700 trucks, pays $40,000 each month for the Dial Around Compensation (about 38 calls per month per truck). "We don't want to spend money for that if we don't have to," Atkins said. But he said the biggest reason a trucker will choose a stop is because it offers lower fuel costs, not because of the telephone service costs. □

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"Relational DBMS and COBOL" may sound like an oxymoron but the Tatung Company, one of the largest in the Republic of China, is using both in a hospital client/server system that delivers better patient care more efficiently. ACUCOBOL™-GT applications seamlessly send SQL queries to a Sybase DBMS and instantly retrieve patient histories, as well as providing easy access to portions of the database to accountants, purchasing agents and other employees. The prognosis is very healthy.

The real scoop on cross-platform compatibility isn't Java, it's ACUCOBOL-GT.

DIGATEX, a food industry VAR in Texas , moved 460 programs and 1,000 screen components from a Novell Network on PCs to ACUCOBOL on a new computer over a weekend for a major ice-cream company. It was the clear choice because it runs on over 600 platforms. The fact that its native COBOL screen painter, relational DBMS access and Web publishing also make ACUCOBOL a great environment for new applications was the cherry on top.

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Which came first? Ask CSD (UK) and they'll tell you exactly when the chickens and the eggs (not to mention the kippers, frozen peas and other products in our food chain) got to or will arrive at your favorite supermarket or bistro. When it came time to update their distribution software, they switched to ACUCOBOL-GT because it provided open access to relational DBMSs from Oracle and Informix, and made it easy to create the more than 500 GUI screens their users required. And now everything is sunny-side up.

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FRANKLY SPEAKING

Firewalls aren't failsafe

FRANK HAYES

Who's responsible for your data security? You are, right? You and the other people in your IS shop.

Ever since databases began to be stored in computer-readable form, it's been IS's job to protect them.

That doesn't just mean managing the technology to protect the data. It means protecting the data.

And that, in turn, means that news reports coming out of Las Vegas for the past couple weeks should have you grinding your teeth, tearing out your hair and reaching for the Maalox.

The reports are from Def Con (last week) and the Black Hat Briefings (the week before), two conferences on computer security threats run by the people who know them best: self-professed hackers, crackers and phreakers.

The big news this year isn't new security holes in TCP/IP or sendmail or Windows NT. That's just technology. We know how to deal with technical security problems, even if sometimes we're slow about installing the patches or closing the loopholes.

No, the big news is that these days, you don't have to be a technology Dark Lord to breach firewalls, crash servers and otherwise wreak havoc on corporate information systems.

You've got to make employees understand that loose lips really can sink your ship.

This year, "social engineering" is back — with a vengeance.

Social engineering is hackerspeak for using nontechnological ways of getting access to your systems. Dumpster-diving for passwords, say. Or making friends with your company's employees, just so they can be pumped for useful information. Or using the phone and a few glib lies to collect the keys to your kingdom.

Maybe the most chilling presentation from Black Hat was security guru Ira Winkler's account of how he cracked a bank's security using only a phone.

First he called an executive's secretary, posing as a human resources staffer, and pumped her for information on the executive. Then he called HR, posing as the executive whose identity he had just stolen, and talked a gullible staffer out of a list of new employees and their ID numbers over the phone.

Finally, he called the employees, posing as an IS staffer, and talked dozens of them into divulging their log-ins and passwords.

Yes, he's an expert — and yes, he lied a lot. But that's all it took to render the bank's three firewalls completely useless.

Social engineering isn't new. Spies, hackers and unscrupulous competitors have used these techniques for decades.

But now it's more popular than ever. So if you're going to protect that data, you'll have to start doing some social engineering of your own. You'll have to drill this into the brain of every new hire and longtime executive and everyone in between: They must not divulge key information to anyone they don't know, with certainty, is inside the company. Not by E-mail. Not over the phone. Not in person.

No log-ins. No passwords. No employee ID numbers. Not even information about what software they use.

You've got to get to new employees first and renew the message often. You've got to hammer it home every time an IS staffer makes contact with any other employee.

Call it a campaign of paranoia. You've got to make them understand that loose lips really can sink your corporate ship.

It won't make you popular. It may put you at odds with human resources or departmental managers who think you're worrying their people needlessly.

But let's face it — they're not responsible for the security of your data.

And if you don't take every step necessary to protect that data, who will? □

Hayes is Computerworld*'s staff columnist. His Internet address is frank_hayes@cw.com.*

SHORTS

More year 2000 worries

Half of all companies worldwide have no plans to test their computer systems for the year 2000 problem, according to a survey of 15,000 companies in 87 countries conducted by Gartner Group, Inc., based in Stamford, Conn. In addition, 23% of all companies worldwide haven't yet started a year 2000 project, though 86% of those are small companies with fewer than 2,000 employees each, said Lou Marcoccio, a Gartner analyst.

Ousted CEO returns to consult

Alan Shugart, ousted as CEO of Seagate Technology, Inc. last month, said he is now a consultant to the company he co-founded nearly 20 years ago. Although the company's board of directors has yet to tell him the reason for his forced departure, Shugart said its actions won't stop him from serving Seagate in his new role. The Scotts Valley, Calif.-based vendor said it expects to absorb a charge of $8 million to $10 million this fiscal year for Shugart's severance package. Both parties declined to discuss what he will earn as a consultant.

Novell seeks NetWare apps

Figuring that software companies are more likely to develop applications for its operating system if it owns a piece of them, Novell, Inc. last week invested $10 million in four networking companies: Evergreen Internet, Inc. in Chandler, Ariz.; GlobalCast Communications, Inc. in Fremont, Calif.; NetPro Computing Corp. in Scottsdale, Ariz.; and NetVision, Inc. in Orem, Utah. Novell officials estimate that more than 300 third-party applications are available for NetWare 4.x and the forthcoming 5.0 release.

Baan makes $5.5M deal

Huck International, Inc., a manufacturer of precision fastening systems for the aerospace industry, has purchased a 500-user license for The Baan Co.'s enterprise software. The deal, which is valued at $5.5 million, includes software maintenance for the next five years. That will be furnished by SolutionBank, a Salt Lake City-based reseller of Baan software.

UUnet guarantees service

UUnet Technologies, Inc. in Fairfax, Va., a subsidiary of WorldCom, Inc., announced a series of service-level agreements for large customers of its Internet access services. The agreements establish various refunds for customers that experience problems with installation or network availability. Companies must have at least one-year contracts for frame relay, dedicated 56K-bit/sec., T1, T3 or OC3 Internet access services.

PC glut means price cuts

In its quarterly PC update, International Data Corp. in Framingham, Mass., reported that "overambitious selling by Compaq" and, to a "lesser degree," other vendors in the last quarter of 1997 led to an inventory glut and subsequent period of price-slashing.

Notes bug pops up in Domino

Lotus Development Corp. officials last week said they will make a software patch available within a month to fix a security breach in its Domino server. LOpht, a Boston-based hacking organization, reported that a user of Notes 4.6 or higher who previews a database through a browser could leave a company's databases and information open for any Internet user to access via the mail client's Hypertext Transfer Protocol (HTTP) port. A Lotus representative said the vulnerability would be tough to exploit. But LOpht suggests setting up routing filters to block access to the HTTP port of Notes-client-only machines.

CONTRACT OF THE WEEK

Customer: Jo-Ann Stores, Inc. in Hudson, Ohio

Prime contractor: Siemens Nixdorf Information Systems, Inc. in Burlington, Mass.

Terms: $3.74 million

Highlights: Siemens will replace the fabric retailer's legacy systems with SAP AG R/3 applications. Scrapping the old systems will solve the year 2000 problem. The R/3 Retail module will improve decision-making in pricing and other areas.

SHORT TAKES **Intel Corp.** in Santa Clara, Calif., is reportedly facing a $500 million patent suit filed by Chicago-based **TechSearch LLC**. The suit, which Intel said is without merit, claims that Intel's Pentium Pro, Pentium II and Pentium MMX chips include technology patented by TechSearch. . . . **Electronic Data Systems Corp.** in Plano, Texas, this week is expected to announce an electronic billing system that will allow corporations to send E-bills instead of paper ones. . . . **Miros, Inc.** in Wellesley, Mass., introduced TrueFace Web, a biometric software tool that uses recorded images of a person's face to authenticate user access. . . . **IBM** and **Sabre Group Holdings, Inc.** are developing end-to-end travel management software for corporations that spend at least $1 million yearly on travel and entertainment.

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Technical Services
Gulf Canada

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Eudora latest mail-bug victim

By Roberta Fusaro

JUST A WEEK after Netscape Communications Corp. and Microsoft Corp. were busy swatting down one potential E-mail scare, a security hole turned up in the popular Eudora mail program used by millions.

The flaw was found and reported last week by Richard M. Smith, president of Phar Lap Software, Inc. in Cambridge, Mass. Smith, a Eudora user himself, said he noticed "something funky" about the way the program handled E-mail attachments. So he began testing the mail program.

Smith found that an attacker could exploit the security gap in Eudora by inserting in an E-mail message a link to an Internet site that can execute malicious code. The hacker could then destroy information on a user's system or launch a virus. The vulnerability affects Windows versions of Qualcomm, Inc.'s Eudora 4.0, 4.0.1 and 4.1, a beta version of the product.

No incidents have been reported so far with the Eudora flaw, but "if we don't fix these things, we're setting up the world for a huge mess down the road," Smith said.

The vulnerability apparently stems from the fact that the new generation of E-mail readers show messages in Hypertext Markup Language. Embedded attachments in the Java, JavaScript and ActiveX programming languages are automatically executed when a user reads an E-mail message. "Vendors say it's safe," Smith said, but a hacker could exploit any security hole through feature.

HEED THE WARNING

Microsoft and Netscape have posted fixes for the long-filename security hole discovered several weeks ago in Outlook 98, Outlook Express and Netscape mail programs. No incidents have been reported so far outside of laboratory tests. But some corporate E-mail users have heeded the warning and are bolstering their messaging systems.

CONVENIENT UPGRADE

Marty Weigle, manager of messaging at Fannie Mae in Washington, said the federal mortgage company is in the process of upgrading its firewall and other security software. The move is not necessarily a direct result of the recently publicized E-mail glitches, she said. But the company is keeping the long-filename flaw in mind.

Most of the 7,000 staffers at Fannie Mae use Lotus Development Corp.'s CC:Mail. But the organization eventually plans to consolidate its half-dozen or so E-mail systems to one and is considering Netscape mail as an option.

A pilot group of about 150 users has been testing Netscape mail, Weigle said, but no long-filename security breaches have been reported. That's probably because the system sits on top of an isolated test server that would be hard for a hacker to access, she added.

"But, yes, [the E-mail bug] scares me. What would happen if we had these kinds of bugs appear if we were using Netscape in a production environment?" Weigle said.

There has been a general feeling of paranoia in the industry after the long-filename bug publicity, said Mike Grayson, president of FigTree Technology, Inc. in Plano, Texas. FigTree helps large companies and government agencies deploy network security.

Systems managers are trying to understand how to identify E-mail threats. Once they find them, they are struggling with how to plug the holes, he said. As E-mail rapidly becomes ubiquitous in corporate life, the threats are always increasing.

The long-filename bug seems more insidious because people don't have to do anything other than highlight a file, in some cases, for code to wreak havoc in an E-mail system or network, Grayson said. "People should scrutinize their E-mail files and attachments, but most don't. They just open things right up," he said. □

MOREONLINE

Visit *Computerworld online* for articles and resources on E-mail security and viruses.

www.computerworld.com/more

Postal Service, MCI link up

▸ *Private network will span 34,000 sites*

By Matt Hamblen

THE U.S. POSTAL SERVICE (USPS) and MCI Communications Corp. last week opened a network operations center in Research Triangle Park, N.C., to manage an enormous private postal data network linking 34,000 locations nationwide.

The center is the most tangible product of an 11-year managed services contract the Postal Service signed a year ago with MCI, in Washington. With options, the contract is valued at $3.3 billion — MCI's largest ever, company officials said.

POSTAL SERVICE STATS

- $90B independent federal agency
- 800,000 employees
- 200,000 vehicles
- 34,000 post offices and routing centers
- 7 million mail and other transactions per day

Source: United States Postal Service, Washington

The Internet Protocol network will operate over MCI's public frame-relay network, with firewall and security protection to keep it private, USPS and MCI officials said. It may be the largest IP network ever built, analysts said.

Clerks at the 34,000 locations nationwide will be able to use the network to track inventory and sales, said Rick Weirich, vice president of information systems at the USPS.

"The network center opening means we've completed the transition from being our own integrator to turning that over to MCI. That makes our job simpler and frees my fellow employees to exploit the network, better serve customers and expand business," Weirich said. "All of this makes us more competitive."

NATIONWIDE ACCESS

Today, a customer can track an Express overnight delivery package by phone or online, but the new network will let customers get the same information in person from clerks at new terminals in post offices.

Currently, terminals allow clerks to tap in to data about inventory and mail load only for that location.

But the new network terminals will give each office access to nationwide data, Weirich said.

A post office manager, for example, could use the network to anticipate mail volume that is arriving in the next day or two, adding extra letter carriers if necessary to handle the work.

Contrary to some predictions about the network, Weirich said, it won't be used to provide a public E-mail service. However, the network is configured to allow public Internet access by employees and will handle internal E-mail.

As part of the contract, MCI is adding 16.8 million network devices, each with its own IP address. □

MOREONLINE

For resource links on virtual private networks, visit *Computerworld online*.

www.computerworld.com/more

Check Point Software announces simplified VPN products. Page 41.

Blue Shield pilots online policy sales

By Carol Sliwa

BLUE SHIELD OF CALIFORNIA last week unveiled what industry observers believe is the first Internet-based health insurance sales processing system.

The San Francisco-based insurer hopes to save $1.5 million per year and slash 95% of the time needed to process health insurance applications with the new online system, which it began piloting last month with 50 of its top brokers. The company expects to bring in another 2,000 brokers during the coming year.

Potential insurance customers should see a significant reduction in the length of the application approval process, getting a "yes" or "no" answer within minutes for a trouble-free application and minutes or days for a more complicated one, rather than weeks, said Dr. Charles Kennedy, director of strategic informatics at Blue Shield of California.

The project involved costs of $2.25 million over six months for the software, hardware, labor and consulting. Blue Shield won't reach the break-even point for another year and a half, Kennedy said. Most cost savings are expected to come from a reduction of data entry and clerk positions, he said.

But the insurer hopes ultimately to boost revenue by $4.9 million during the next three years, as independent brokers choose Blue Shield because it can sell policies more quickly and easily than its rivals.

Gartner Group, Inc. analyst Janice Young, who tracks the health insurance industry, said she expects more companies to follow Blue Shield's lead. "The main advantage is the speed with which they can return an [underwriting] quote to organizations," Young said.

Instead of doing the development itself, Blue Shield used a new Managed Care Extranet software package from Sash Communications, Inc. running on Sun Microsystems, Inc. systems. It takes advantage of the latest Java and application-server technology to help the application scale and work reliably.

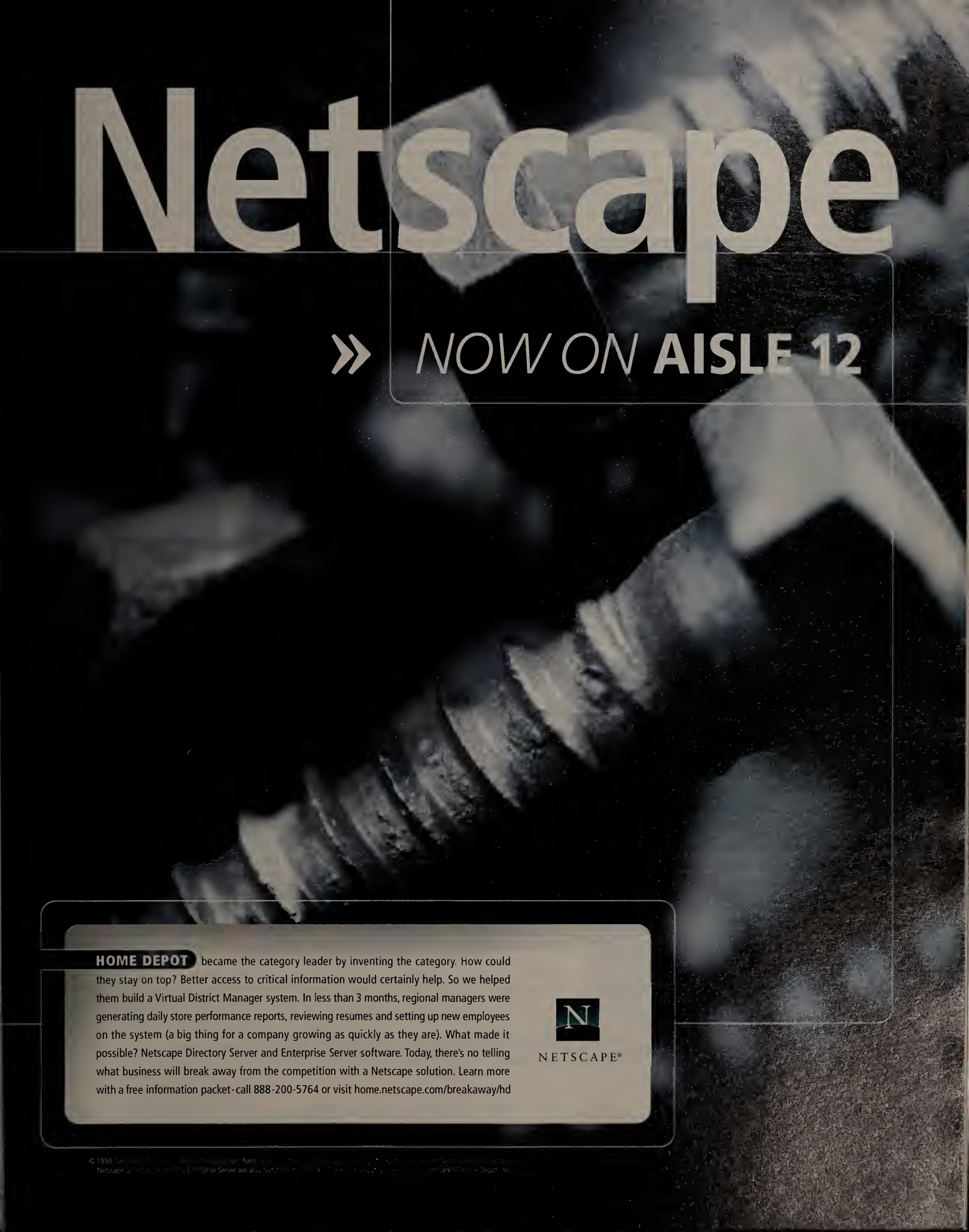
Business rules built in to the middle tier of the application — running on Netscape Communications Corp.'s application server — help automate the underwriting process. A healthy individual can get a price quote and approval for a health insurance plan within seconds, once the online application is completed, said Sash CEO Vip Patel.

MIXED BLESSING

For the brokers, the new system will be a mixed blessing. They will now have to enter data into an electronic form themselves, rather than sending paper-based information to Blue Shield employees for data entry and processing. But they will be able to service their customers much more quickly, which can be a significant advantage.

"We work in the heart of the Silicon Valley," said Bob Heckley, owner of Ann & Bob Heckley Health Insurance Sales in Campbell, Calif. "A higher percentage of people are oriented to doing things over the Internet. People are very, very impatient [here]."

Heckley, who sells insurance for several carriers, said the faster Internet-based system might make him more inclined to recommend Blue Shield rather than another company. □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HP confirms its Unix support

▸ *Soothes users worried about Win NT focus*

By Jaikumar Vijayan
SAN DIEGO

ANXIOUS TO quash any notions that it's paying less attention to Unix these days, Hewlett-Packard Co. used the HP World trade show here last week to hammer home its continued commitment to the operating system.

The company outlined Unix hardware and software strategies, including plans to deliver the following products:

- Faster, performance-boosting PA-RISC chips, such as the PA-8400, due out next year.
- Massive 128-processor Unix servers, which can scale to allow for server consolidation or handle fast-growing applications such as data warehousing.
- Systems capable of scaling up to 1,000 processors based on Intel Corp.'s forthcoming Merced chip (see chart).
- High-availability and network management software based on its OpenView technologies to improve Unix server reliability.

Bolstered by what it calls a strong response to its high-end and midrange Unix servers, HP tried to assure users that HP's growing support of Windows NT and Intel PC technologies doesn't mean a dilution of its Unix commitment.

GROWTH PATH

International Data Corp. (IDC) in Framingham, Mass., estimates that HP's Unix system revenue grew by 23%, to $4.7 billion last year.

"Our goal is to double performance at the application level every year" during the next five years, said Bill Russell, vice president and general manager of HP's enterprise systems group.

HP's Unix plans struck a responsive chord among users who worried about the company's NT strategy getting far more attention lately.

"I think it shows that HP is listening to its customers," said Bruce Perttunen, a programming supervisor at Fitness Management Corp. in Bloomfield, Mich.

"They've got a huge Unix base out there that they are going to have to actively support" for some time, he said.

"HP wanted people in general to believe that they were going to be supporting NT" in a big way in the future, said Randall C. Fuehrer, an information systems engineer at Tualatin Valley Fire & Rescue in Aloha, Ore. "What they are saying now is that they also believe in Unix and are going to push it at the high end."

HP's renewed Unix push comes at a time when Palo Alto, Calif.-based Sun Microsystems, Inc. is threatening to overtake HP in market share. The most recent IDC figures show Sun leading HP in actual units of Unix servers shipped last year. Sun shipped 104,000 servers compared with HP's 82,000, according to IDC.

HP is still the Unix revenue leader, however, with more than $10 billion of its $42.9 billion coming from Unix system and support revenue.

"One year ago, we got whacked a bit by our customers. We had managed to convey the impression that we were not serious about Unix," said Nick Earle, vice president of HP's enterprise systems group. □

HP's Unix server road map for the next five years includes the following:

- 16-way HP 9000, V-Class HP 9000 server based on PA-RISC 8400 chip
- Up to 128-way Unix server based on Non-Uniform Memory Access (NUMA) technology
- 64-way server based on Merced
- NUMA-based server capable of supporting up to 1,000 Merced CPUs

Users respond to HP plans

Hewlett-Packard Co.'s renewed focus on Unix may have been a major focus for the company at last week's HP World trade show in San Diego. But it also used the event to air its plans in crucial areas such as electronic commerce, Windows NT, 64-bit computing and high-availability computing.

Here are some reactions from show attendees:

On the coexistence of NT and Unix:

"The big trend at our company is to get whatever we can on NT. A few years ago, almost everything here was Unix. . . . Now it is closer to 50% Unix and 50% NT. Unix is still a big part of [HP] . . . but they have also recognized the importance of NT. . . . They are trying to reorganize their strategies around what the market wants. That's a good focus."

Scott Sanders, NT administrator
Reltec Corp., Warrenville, Ill.
Business: Makes telecommunications equipment
HP connection: Currently implementing SAP project on HP 9000 servers

On HP's high-availability strategy:

"It is the issue I am hoping to hear the most about from HP. The group I work for supports 12,000 to 15,000 users, most of them engineers. Some of the analysis work they do can run for weeks. . . . It is absolutely crucial the servers don't go down."

Thomas Harlam
Systems administrator
Lockheed Martin Corp., Orlando, Fla.
Business: Defense and aerospace
HP connection: Uses HP servers to run design-analysis apps

On HP's electronic-commerce strategy:

"I don't understand what they are trying to say. . . . I am still a bit confused. They have a message, but I think they are being far too general. . . . They seem to be putting ideas out there and seeing who responds. . . . The problem is, I don't think they have a specific application to give customers today."

Randall C. Fuehrer
Information systems engineer
Tualatin Valley Fire & Rescue, Aloha, Ore.
Business: Emergency response
HP activity: Fire management software on HP Unix, 911 system on HP 3000

— Jaikumar Vijayan

Stratus users voice uncertainty

▸ *Acquisition leaves nontelco users in limbo*

By Jaikumar Vijayan

USERS OF Stratus Computer, Inc.'s fault-tolerant computer systems could face months of uncertainty regarding the future of their platforms following the acquisition of their vendor by Ascend Communications, Inc.

Alameda, Calif.-based Ascend last week said it will acquire Marlboro, Mass.-based Stratus in a deal worth $822 million.

Ascend said it will buy Stratus primarily for its telecommunications business unit.

After the merger is approved sometime this fall, Ascend will combine Stratus' software, enterprise server and financial and enterprise software units into a single entity, which it will sell along with the Stratus name.

That sets the stage for what could be a wrenching period for Stratus' nontelecommunications customers, said Rich Partridge, an analyst at D. H. Brown & Sons, Inc. in Port Chester, N.J. He said he expects Stratus' telecom customers will have few transition problems because Ascend plans to integrate the technology with its own products.

"It is something that could leave current customers feeling kind of confused. . . . I hope there is a lot going on in the background" to resolve what exactly is going to happen to Stratus' server business, he said.

"At this stage . . . we haven't received enough information to know what is going on," said Ron Hewitt, president of SCI Group in Austin, Texas, which makes software for Stratus systems. "We don't know who is going to manufacture the hardware or who is going to develop [or support] the software."

In a letter to customers posted on the company's Web site late last week (*www.stratus.com*), Stratus CEO Bruce Sachs and Ascend CEO Mory Ejabat said customers would still get full support for Stratus' VOS, FTX, HP-UX and Continuum technologies. All of Stratus' nontelecom businesses will be folded into a new business called Enterprise Computer Business.

Stratus' Continuum series of servers range from relatively small Unix and Windows NT servers to powerful nonstop systems running Unix and a proprietary operating system called Virtual Operating System (VOS). Stratus has never been a major vendor in commercial general-purpose computing, but major companies in the banking, retail, health care and transportation industries depend on the systems for near-continuous application and system availability.

Since the proposed acquisition was announced, "we have been getting a lot of calls from our members wanting to find out more [about the merger]," said Jayne Boehler, executive director at Stratagy, an independent Stratus user group in Cambridge, Mass. "They are calling us to find out if we know anything about what is going to happen to their machines and who is going to take care of them. We are asking them to go to the Stratagy conference in San Diego." □

Stratus Computer's product revenue breakdown

*Travel, retail, gaming

Total 1997 revenue: $688.3M

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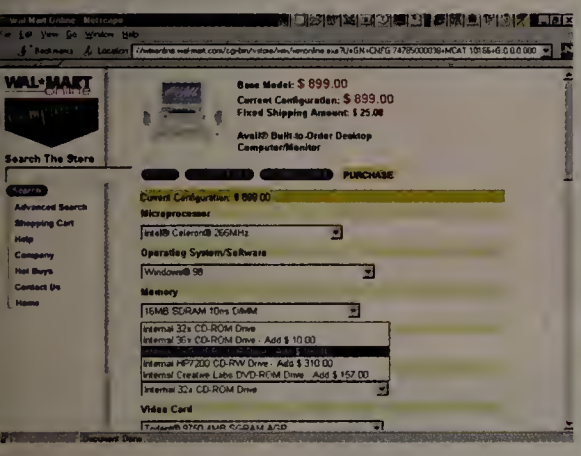
Retailers make big Web moves

CONTINUED FROM PAGE 1

oped technology to search for and price-check items across the Internet.

Meanwhile, probably the most feared brand in brick-and-mortar retailing, Wal-Mart Stores, Inc., launched custom-configured PC sales on its Web site, (*www.wal-mart.com*), an area in which Dell Computer Corp. says it pulls in $6 million per day.

Wal-Mart, in Bentonville, Ark., is the country's largest retailer and ranks fourth in annual revenue among the Fortune 500, with $118 billion, behind only General Motors Corp., Ford Motor Co. and Exxon Corp.



Wal-Mart now offers customized PCs for sale online

Seattle-based Amazon.com may not necessarily add new goods to its site but instead may help consumers find additional items at other Internet sites. Amazon.com could generate revenue through commissions, partnerships and advertising for a Junglee shopping service, analysts said.

Following another acquisition last week (of a major Web address book/organizer site called PlanetAll) Amazon.com appears to be moving toward becoming a so-called portal site where consumers would go for many reasons, not just books.

CATEGORY KILLER

"Some online retailers will be threatened by Amazon's move into other product categories," said Nicole Vanderbilt, an analyst at Jupiter Communications, Inc. in New York. But she added that she believes that the "category-killer approach" — trying to be the best site for books, clothes or travel — is a better and easier path for most retailers online.

"There will be some customers that want to go to a specialty retailer for their toys and others that will pick them in a bigger purchase while on Amazon's site," she said. Her advice for competitors: "Recognize which customer segment you are serving and focus on creating the best experience for those users."

"In the world of 'unreal estate' . . . Amazon got there first and set up the lead brand," said Marian Salzman, an analyst in the brand futures group at Young & Rubicam, Inc. in New York. In its foray into custom-built computers, Wal-Mart is partnering with ACI Micro Systems in Colorado Springs, which will produce, ship and support the PCs under the Avail brand name.

"I wouldn't bet against them," said John Jordan, director of electronic-commerce research at Ernst & Young LLP's Center for Business Innovation in Cambridge, Mass. "I haven't seen Wal-Mart flop [at] too many things . . . and no one is ever going to accuse Wal-Mart of not knowing logistics." Its strength in rural areas, where real-world computer stores are limited, could help PC sales.

But other industry watchers question how much even a name like Wal-Mart will mean online. "Real-world retail brands have yet to translate as well to the online channel as many originally thought they would," Vanderbilt said. "Barnes & Noble is a great example of this. And Wal-Mart may have an even more difficult time, given the vast difference in the current online demographic and the Wal-Mart demographic."

Wal-Mart has been selling preconfigured computers on its site, along with some merchandise that isn't available in its regular stores. □

If you're leading your enterprise's Internet-related initiatives, you can't afford to miss IDC's Internet Executive Forum.

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- ➤What business values can be derived from deploying an intranet or extranet?
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MARK LORIMER, President and CEO, Auto-By-Tel

DR. ROBERT M. METCALFE, VP/Technology, IDG

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DR. JEFFREY RAYPORT, Associate Professor of Business Administration, Harvard Business School

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*For more information about Windows NT Server and Year 2000 see www.microsoft.com/ntserver/y2k.

†Price reduction applies to version upgrades from any previous version of Windows NT Server and competitive upgrades—consult your reseller for a complete list of qualifying competitive products. Discount is up to 20% off estimated retail price of Windows NT Server 4.0. Reseller prices may vary. Promotion does not apply to Windows NT Server 4.0 Academic product. All price reductions effective through 11/15/98. Offer good in U.S. and Canada only.

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Ironic, isn't it? That an inconvenience of Y2K's* immensity might actually do your network some good after all. But consider it this way: since there's no getting away from that major network upgrade, maybe there's something you can get out of it. For instance, here's what happens when you upgrade to Microsoft® Windows NT® Server 4.0:

Windows NT Server 4.0 delivers proven file/print performance. Using the industry-standard Netbench performance tool, Windows NT Server 4.0 outperforms Novell NetWare 4.11 by nearly 17% in file/print throughput tests.

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Windows NT Server 4.0 is the easy way to prepare for the future. It's already the leading intranet platform—in fact, according to IntelliQuest, it's the platform that 56% of corporate Web applications are being built on. And with features like remote access services, virtual private networking and out-of-the-box integration with Microsoft Proxy Server, you can enable cost-effective, secure communication across the Internet among employees, customers and partners. It's an exceptional Web server too—according to NetCraft, more than half a million Internet sites are currently running on Windows NT Server.

Windows NT Server 4.0 reduces total cost of ownership. A recent study by the Business Research Group compared it to NetWare in a mixed environment, and revealed that, as a unified platform, Windows NT Server 4.0 lowers the costs of providing file/print sharing and application support by nearly 20%.

And if you upgrade now you'll save up to 20% off the estimated retail price.† You'll also qualify for a free Services for NetWare CD-ROM (ERP $149) that makes it easier for you to transition your NetWare-based network to Windows NT Server 4.0.

So the question is not: How can I minimize the inconvenience of having to upgrade my file/print? The question is: How can I maximize the benefit of doing so? It seems that Y2K is about more than just surviving the turn of the millennium. Windows NT Server proves that it's equally about making the most of what's left of the 1900s, and getting the 2000s off to a flying start.

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Point and click; Unix apps installed

Sun alliance to ease installation of Solaris applications

By Jaikumar Vijayan

ONE OF THE RAPS against Unix applications is the hassle involved in installing and configuring them compared with Windows applications.

Sun Microsystems, Inc. in Mountain View, Calif., has taken a step toward addressing that issue by announcing an alliance with InstallShield Software Corp. in Schaumburg, Ill. InstallShield is a major developer of Windows installation and deployment tools.

The two companies have developed installation routines for Sun Solaris applications that company officials said make those applications as easy to install as Windows software.

The routines will give users a standard graphical interface through which to point and click their way through the installation.

Currently, the process differs with each application, and most installations involve writing scripts at the command-line level.

TIME-SAVER

The new feature could easily save Dunlop Tire Co. up to two weeks per year in application installation time, figured Hugh Allan, manager of information technology at the Amherst, N.Y.-based company.

"We install between six and seven new Sun servers every year with a variety of new applications. . . . Anything that makes the process easier is beneficial to us," Allan said.

Giving users Windows-like installation features also will go some way toward erasing the perception that Unix is an incredibly complex environment compared with Windows NT, said Mary Hubley, an analyst at DataPro in Miami. "One of the things holding people back when it comes to Unix is the perception that it is hard to use," she said.

Sun will integrate the installation routines into its Solaris Web Start Wizard technology. That will make it possible for users to install Solaris applications remotely over the network from any kind of platform.

The installation tools will be integrated with all future versions of Sun's Solaris applications. The company is also asking independent software vendors to integrate the tools into their future Solaris applications.

Sun has also announced immediate availability of a developer's kit that will let independent software developers integrate the installation routines into their Solaris applications. An estimated 12,000 applications run on Solaris today. □

What's changed in the past five years of enterprise networked computing? Only almost everything. Products. Vendors. Technologies. Standards. Probably even your job.

Alas, now that IT solutions are considered to be the crown jewels of the enterprise, heavy are the heads that wear the crowns, avoid the slings and arrows, and survive the battles to bring glory and triumph to their companies and colleagues.

If one of those heads happens to be yours, bring it to AIM Technology's Fifth Anniversary Hot Iron Awards celebration taking place at COMDEX/Enterprise San Francisco 98. The Awards honor the latest performance leaders based on AIM's trusted independent benchmarks for UNIX System and Microsoft Windows NT solutions.

The black tie-optional event, sponsored by Intel and SCO, will be held September 8 at San Francisco's historic Palace Hotel. There you'll see and celebrate the latest workstation and servers offering high-performance interoperability for enterprise networking.

To get your company's offerings entered for the Fifth Anniversary AIM Technology Hot Iron Awards, or for more information about the Awards and AIM's tools and services for users and vendors, call 800/848-8649, e-mail benchinfo@aim.com, or visit www.aim.com.

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User's faulty router leads to service snafu at Web host

By Patrick Thibodeau

FRONTIER GLOBALCENTER, a World Wide Web hosting service that counts Yahoo, Inc., *USA Today* and Netscape Communications Corp. among its customers, suffered some short-lived service problems last week when a customer's router started giving out faulty instructions.

The problem, reported Aug. 4, lasted for about 20 minutes.

The faulty information sent by a new customer's router also forced other routers to deal with thousands of routing updates, said Jonathan Heiliger, Frontier GlobalCenter's chief technical officer. The company will change the type of filtering used on customer routers, Heiliger said. □

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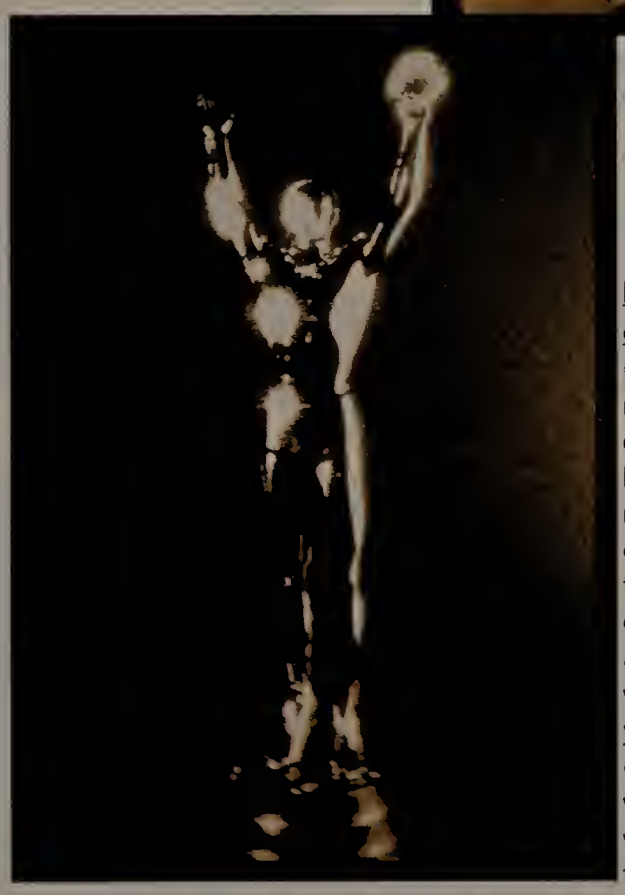

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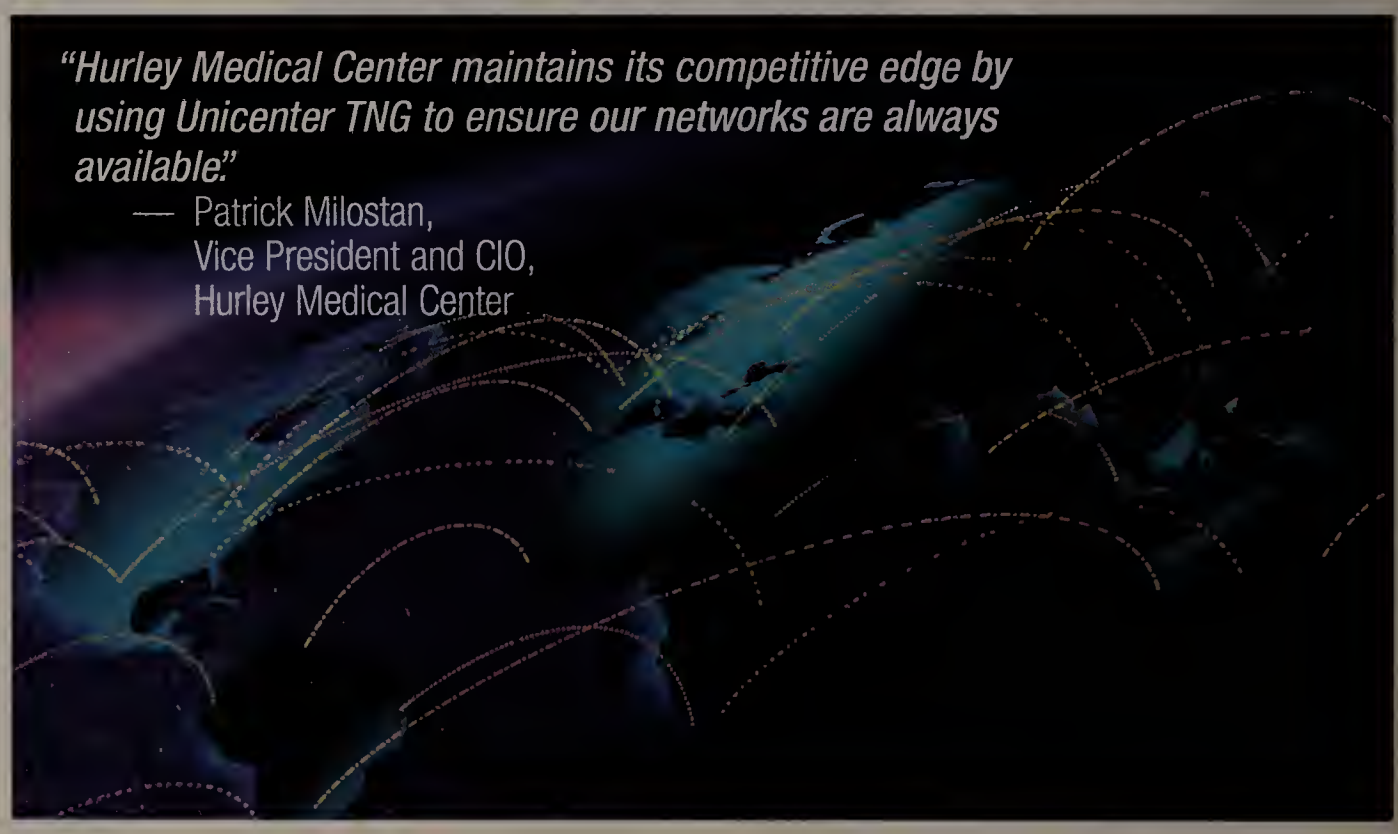

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Borland tools targeting enterprise

Some aren't quick to jump on bandwagon

By David Orenstein

THE STRATEGISTS at Inprise Corp. are focused on the enterprise — and this week's BorCon98 in Denver will be a rally to that cause. But for many users of Borland tools, the company's grand designs are too high a level of abstraction.

Renamed in April after Borland International, Inc. acquired Visigenic Software, Inc., Scotts Valley, Calif.-based Inprise has since pursued strategy to embrace the corporation. It is holding its user conference under the new name for the first time.

Mike Riley, director of Internet application development at R. R. Donnelley & Sons Publishing Corp. in Chicago, said his primary interest in Inprise lies with application development tools such as Delphi and JBuilder. He said Inprise's roots are in inexpensive, shrink-wrapped tools that give developers the ability to develop smaller projects cost effectively.

"Borland's direction right now is a little more toward the enterprise than I am," said Chuck Gadd, a Delphi developer at Denver-based consultancy Cyber FX Communications, Inc. and webmaster at the Borland User's Group in Denver.

Gadd said other Delphi users he is familiar with in the Denver area aren't developing enterprise-scale applications.

The smaller-scale view of Inprise many users have in their day-to-day work doesn't mean they will ignore the expected keynote speeches on enterprise computing, the buzz about the company's announced plan to release a new application server or presentations on Common Object Request Broker Architecture (CORBA) products, such as VisiBroker, acquired in the Visigenic merger.

The ability to integrate with different back ends — either CORBA objects or Microsoft Corp.'s Transaction Server — is important to Troy Sabin, vice president of Delphi Developers of Dallas and a senior consultant at U.S. Web Corp. Sabin said he is looking closely at developing distributed systems in JBuilder and CORBA. But the concept of an Inprise application server is still beyond the scope of his projects, he said.

Riley said that if Inprise wants to challenge large, established vendors in the arena of enterprise-class, high-priced products, it will need to follow through with strong sales and support.

"If they can bring the same level of capability [to enterprise products] as they have with their tool sets, they have the capability to succeed," Riley said.

Gadd said that, as Inprise wins more enterprise-class customers, the smaller companies he works with will feel more confident using Borland-based applications. □

Powersoft confab will place focus on 'net

By David Orenstein

THE MESSAGE and top concern users are bringing to Sybase, Inc. at Powersoft Conference 98 in Los Angeles this week is loud and clear: The power these days is in the Internet.

"I'm most interested in their strategy for integrating PowerBuilder with the Web," said Victor Reinhart, president of California's Orange County PowerBuilder User's Group and a developer at PacifiCare Health Systems, Inc. in Santa Ana, Calif.

Jagdish Karira ia a project manager at systems integrator TRW, Inc. in Detroit and secretary of the Eastern Michigan PowerBuilder User Group. He said he will be looking for information on anticipated upgrades of PowerBuilder 7.0 and PowerJ 3.0 — neither of which have been announced yet — that will help him deploy his applications on the World Wide Web easily.

Karira, whose clients at TRW include the big automakers, said he also wants to see more Web security features in the tools.

And the clients, he said, want to see more stability on the part of Sybase.

The Emeryville, Calif., company lost money during the past three years and is unprofitable thus far this year. Discussions about the uncertainty of the future of PowerBuilder and Sybase are common among users, Karira said.

Jim Nelson, a senior consultant at Indecon, Inc., a Dublin, Ohio, company that is working on contract for American Electric Power, Inc., said he is concerned about the language's future. Encouraged by Sybase's recent moves to show a stronger focus on the Internet, the enterprise and distributed application development, he said those capabilities improved markedly between PowerBuilder 5.0 and 6.0.

Karira said PowerBuilder is a valuable enough tool that it will survive, even if Sybase is acquired or continues to experience financial problems. "I do feel comfortable. I believe in the tool. No matter where the company would go, the tools will live," he said. □

In Russia: Digital eavesdropping?

E-mail monitoring harkens Big Brother

By Jeanette Borzo

RUSSIA'S Libertarium site on the World Wide Web celebrated its fourth anniversary this month. But founder Anatoly Levenchuk — the proud owner of one of the first 150 Internet addresses handed out in the former Soviet Union — barely noticed.

Like many Web users in Russia, he has another thing on his mind: government surveillance of E-mail traffic.

Russian Web users also are concerned about higher Internet access costs, a chilled Internet service provider market with fewer players, and potentially serious damage to a burgeoning electronic-commerce market.

Those worries stem from a new version of Russia's SORM ministerial act, which stands for "system of efficient research measures." The act could be approved by the Russian Ministry of Justice by October, according to sources in Russia.

ONLINE SNOOPING

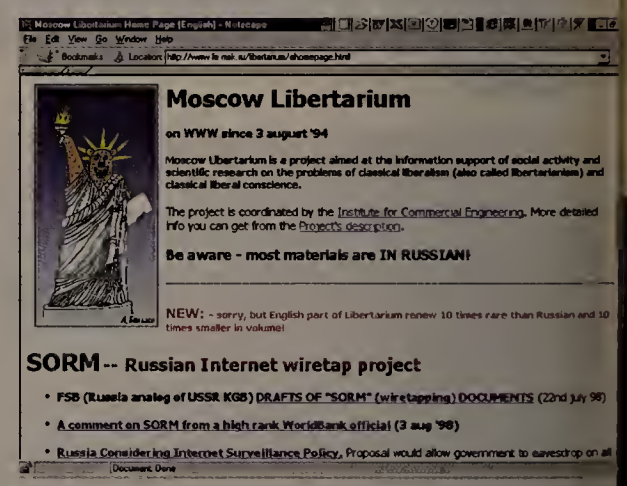
Hatched between the FSB (a successor to Russia's KGB secret police force) and Goskomsvyaz, the State Committee on Communications, the so-called SORM-2 act would let the FSB boost its monitoring of E-mail messages by digitally linking its offices with Internet service providers throughout Russia.

"SORM-2 will be an invisible curtain between Russia and abroad — a curtain of distrust," Levenchuk said. "If we have uncontrolled Internet surveillance, it strikes fear into my heart."

At its least menacing, SORM-2 is no more than the FSB's attempt to test its power over the Internet community in Russia. The country has 350 Internet service providers and 1 million people who use the Internet, according to former Soviet leader Mikhail Gorbachev.

"Last year, we had similar situations with FSB propositions, [and the agency] had to step back under public indignation," said Michael Novikov, marketing manager for software developer Arcadia, Inc. in St. Petersburg, Russia.

Because SORM-2 would require Internet service providers to pay for the surveillance devices, many say the proposal does not have a chance. "They're not prepared to go out shopping for equipment so that the FSB can snoop on their business," said Robert Farish, International Data Corp.'s (IDC) research manager in Moscow.



The *www.fe.msk.ru/libertarium* site founder has government surveillance concerns

Russian Internet service providers expect the surveillance device to cost $10,000, along with about $1,000 per month for the line to the FSB. SORM-2 costs would likely average 10% to 15% of the overall operational cost.

"The . . . burden will be quite heavy for small ISPs," said Arcadia's Novikov.

Enforcing the SORM-2 act would require cooperation from more than just Russia-based Internet service providers, however. "A great number of ISPs operating in Russia are owned by foreign entities," said Drew Weeks, a Prague-based data communications analyst at IDC.

"The most likely effect [of SORM-2] would be a very significant increase in the use of software encryption," Farish said. But encryption licenses aren't widely held among Russian users. So if SORM-2 storms the Russian Internet market through the front door, unlicensed encryption technology is likely to slip in through the back, many observers said.

Indeed, business users from abroad may shy away from working with Russian enterprises — and Russian network managers will need to think twice about corporate E-mail policies. "The writings of businesspeople will not be private," Levenchuk said. "They will be sent to their correspondent and to Federal Big Brother" (as the FSB is often called in Russia).

SORM-2 may also have a wider impact on the economy, creating further trust problems for investors looking for opportunities in Russia. For example, investments in the Russian telecommunications industry might decline, Novikov said.

Ultimately, if SORM-2 is approved, it will be subject to legal challenges — like all government regulations. And as many Russians know, the government doesn't carry out every act it signs, Novikov said. □

Borzo writes for the IDG News Service in Paris.

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Publisher combats network gremlins

▸ *Monitoring tools improve service at retail operation*

By Patrick Dryden

WHEN STUDENTS descend on campus bookstores next month, both IS and business managers at the University of Toronto Press expect to be well-prepared for the onslaught.

Canada's oldest and largest scholarly publisher also operates a seven-store retail division that generates 30% to 40% of the publisher's annual revenue during a two-week period. That's when all servers, PCs, LANs and Internet connections must perform well so that applications respond promptly.

This time around, an early-warning system should help prevent slowdowns and other retail catastrophes.

"We worry about heavy loading during the fall rush because every point-of-sale system is running, and we're all trying to reach *Books in Print* on the CD-ROM server and our vital databases," said Anna Cudini, the retail division's systems coordinator. She acts as the liaison between users and information systems managers.

"We can't do our job if response is slow from the sales, inventory, receiving and accounting databases — or from IS," Cudini said.

In a normal week, senior systems analyst Nicolas Feasey said he gets two to five calls from users in the retail division complaining of slowdowns. Each query triggers an investigation, which may require hours or days of troubleshooting and a visit to the caller's store.

WALLS CRASHING DOWN

Such situations often precede network failures, which can disrupt business any day and seriously threaten store operations during the back-to-school crunch.

Either way, the calls mean customers and clerks are frustrated. That's unacceptable, Feasey said, "even though students are used to waiting in long lines."

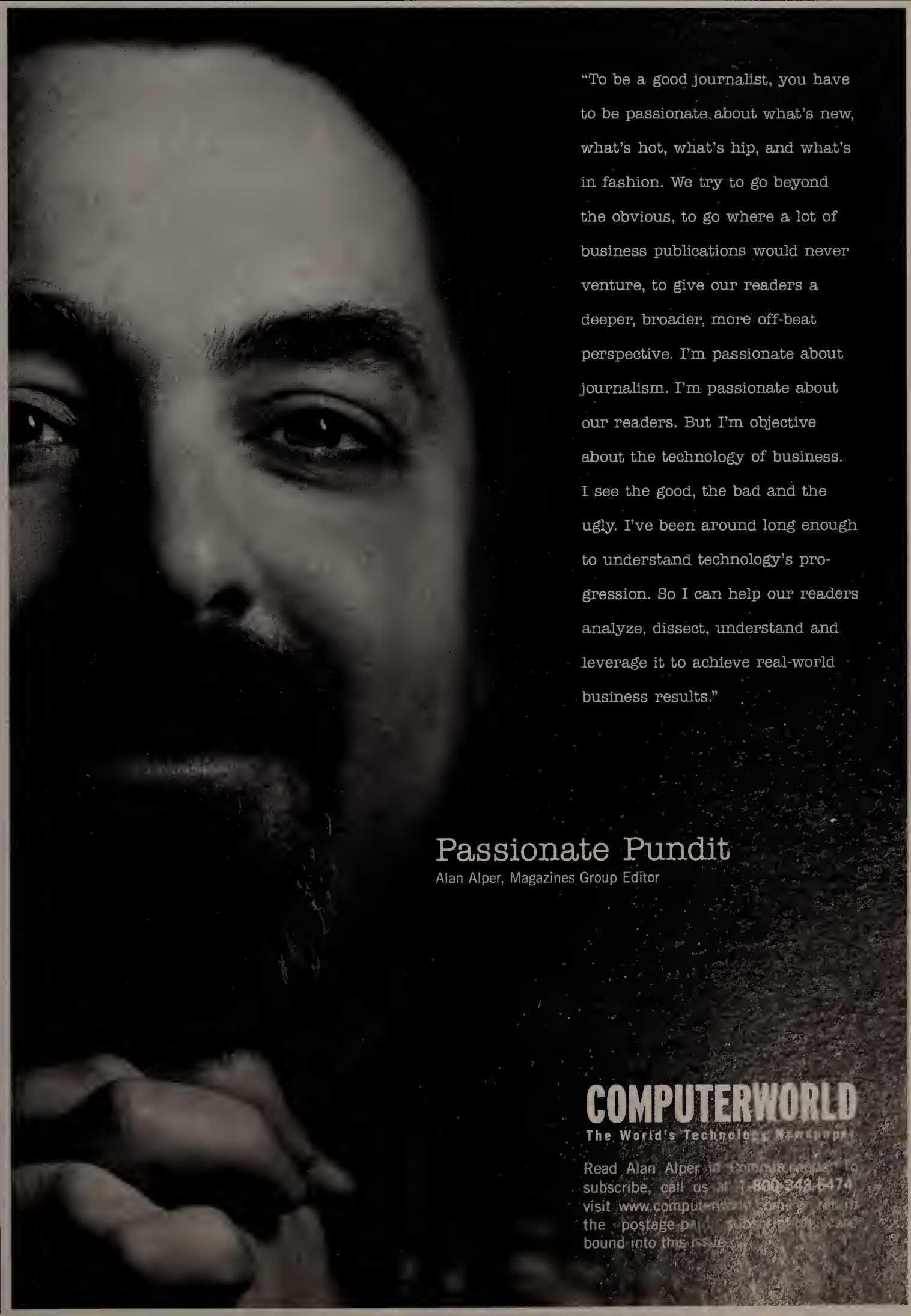
Like many IS groups, the caretakers at the University of Toronto Press sought a way to break out of the reactive rut by monitoring performance from a user's point of view. They wanted to detect symptoms before they become problems.

To do that, they installed VitalHelp monitoring agents from VitalSigns Software, Inc. in Santa Clara, Calif., on all servers and a few critical PC stations at each store. The software tracks many aspects of network, systems and application performance and then reports to a central console.

Those reports have been "a godsend to me in IS," Feasey said. For example, operators for the first time are aware of diminishing memory and disk space on remote systems, and they get real-time analysis of network traffic content.

"We're on top of things now," Feasey said. That means operators can sometimes prevent problems or be able to tell callers immediately what is causing their performance problem. They also know where to start troubleshooting, he added.

This new IS efficiency translates to lower operating costs because "we don't have to ask for more technicians to react to problems," Feasey explained. Even better, it promises improved service to users and customers, Cudini said. □



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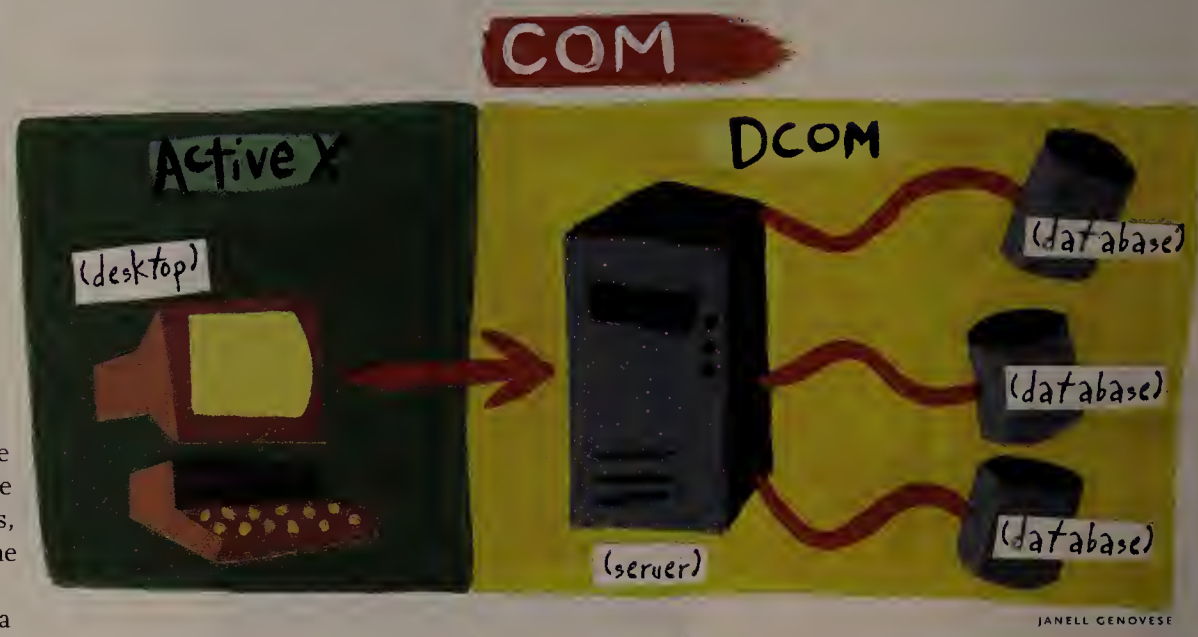
ActiveX

DEFINITION: ActiveX is the Windows-desktop arm of Microsoft Corp.'s Component Object Model (COM), a software component architecture that is like electronic plumbing that connects software components to one another and lets them send information back and forth. COM is the overall architecture that extends from the front end back through to the server and the database. ActiveX is the part of COM that handles the desktop, leaving the network-hopping to COM's other arm, Distributed Component Object Model (DCOM).



JANELL GENOVESE

ActiveX is the desktop component of COM. DCOM is the server-side component of the overall architecture.

The king of the desktop branches out

By Sharon Gaudin

AFTER SURVIVING the first wave of an onslaught from rival Java, Microsoft Corp.'s ActiveX remains on top of the component architecture heap.

Although Java — the platform, the software component and the language — stole most of the headlines in the past year or two, ActiveX — the software component and architecture — continues to quietly steal the market. According to analyst reports, ActiveX holds about twice the market share that Java has accrued in the past two years.

AT ISSUE
Can ActiveX make it on the Web?

And because ActiveX is built in to Windows-based applications and operating systems, there's no chance of it slipping out of sight any time soon.

IT'S EVERYWHERE

"There's no getting away from it," says Karen Boucher, a vice president at The Standish Group International, Inc. in Dennis, Mass. "It's embedded in so many Microsoft products, and if developers want to modify any of those products, they have to use it. You customize the ActiveX components, and you customize the application."

There tends to be a cloud of confusion surrounding ActiveX — users and analysts are slightly muddled as to exactly what it is. ActiveX is part of Microsoft's Component Object Model (COM) software architecture.

COM links all of the components in the system together, enabling them to pass requests and information back and forth. ActiveX is the part of COM that handles component communication on the desktop, giving life to the Windows interfaces. Distributed Component Object Model is the part of COM that runs between machines, linking the server to databases and back to the desktop (see illustration).

But ActiveX, though king of the desktop, is working its way into other areas of the system. ActiveX controls — Microsoft's name for components — are starting to be used on World Wide Web servers, for example. And Microsoft executives, such as group manager Joe Maloney, contend that ActiveX controls are shooting across the Internet, bringing animation and function to Web pages.

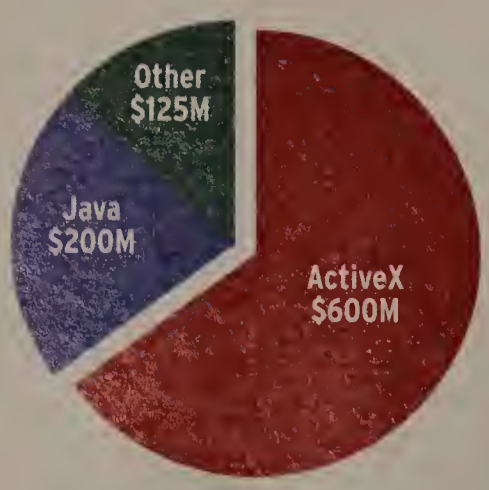
But not everyone is taking the bait.

WEB ISSUES

"ActiveX has not done so well on the Web," says Evan Quinn, an analyst at International Data Corp. in Framingham, Mass. "Because it has such a big footprint, it takes a little while to get [the controls] moving. And since they only work on Windows, a developer has to be sure they're not going out over the Web and landing on anything but Windows. It is mostly Windows out there, but you can't always be sure, so why risk it?"

ActiveX is used widely on corporate intranets because developers know exactly what browsers and desktop operating systems end users have. That way, there's no guessing whether an ActiveX control will find a Windows-based home. □

The developer market in 2000



Total market: $925M

Source: International Data Corp., Framingham, Mass.

FAQ: Components can add punch

Q: ***What are software components?***
A: Components, also called controls, are reusable chunks of software that can be taken out or dropped into applications to remove or add functions.

Q: ***What platform does ActiveX run on?***
A: ActiveX is Windows-specific. Most corporate developers use ActiveX controls to customize their Windows-based software, such as Word, Excel and Internet Explorer.

Q: ***What are JavaBeans?***
A: JavaBeans, rivals of ActiveX components, are cross-platform software components based on Java. JavaBeans can run on any platform, such as Windows NT, Apple or Unix. Their platform independence gives them an advantage on the Web because Java developers don't worry about what machine or browser will be on the other end of the connection.

Q: ***What's the relationship between ActiveX and DCOM?***
A: ActiveX and DCOM work together, much like JavaBeans and Common Object Request Broker Architecture, which is platform-independent, object-oriented and rivals Microsoft's COM architecture but which has a much smaller portion of the market.

Q: ***How does ActiveX fit into Microsoft's technology plan?***
A: Microsoft's theory is that more corporate developers using ActiveX will increase the chances of adopting DCOM. And that increases the chances of developers buying Windows-based applications such as Word, Excel and the Windows NT operating system for their enterprise networks. COM is considered the bus on which the other technology rides. Once the bus is in place, riders can get on board.

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OPINION

Wal-Mart of the Web

I must know a dozen people who are regular customers of Amazon.com. No, not regular customers — devotees. Their commitment to the online bookseller is similar to the loyalty people have for Starbuck's latte or the Grateful Dead.

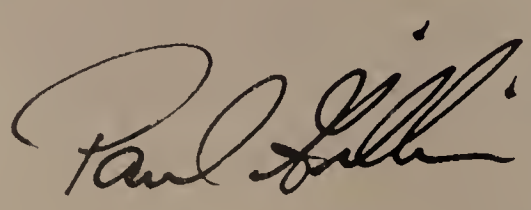
I joined the faithful last month when Amazon magically tracked down a mint edition of a book my father wrote in the 1960s. It had been out of print for 20 years. Barnesandnoble.com had never even heard of the title. Amazon had it for me in a month. I believe.

With its acquisition of Junglee Corp. last week, Amazon tipped its hand on its grander ambition: to be the Wal-Mart of the Web. There are striking parallels. Wal-Mart built its business by selling a comprehensive range of products at discount prices to consumers who had few other options. Amazon is doing much the same thing. But whereas "location, location, location" is the mantra in the physical retail world, the online equivalent is "brand, brand, brand."

The Junglee technology will let Amazon become the middleman between consumers and a wide variety of products consumers might want to buy on the Web. The analogue to Wal-Mart's sprawling discount stores could be Amazon's widely respected brand. Once consumers do business with Amazon, they tend to come back again and again. And there's no reason they'll buy only books.

If you're trying to build a retail business on the Web, it's worth watching these developments. Amazon may not want to compete with you, but it may want to point customers your way in exchange for a piece of the action. Remember how Wal-Mart used its relationship with customers to pressure suppliers to do business its way? Could the same happen on the Web?

I've never been a big believer in online retailing. In fact, I predicted more than a year ago that Amazon stock wouldn't match its opening day high for at least a year (it's up 1,000% since then). But Amazon is proving that you can build a business model on the Web — not by chasing fads but by relying on what has worked for thousands of years: selling products people want to buy at prices people want to pay.



Paul Gillin, *editor*
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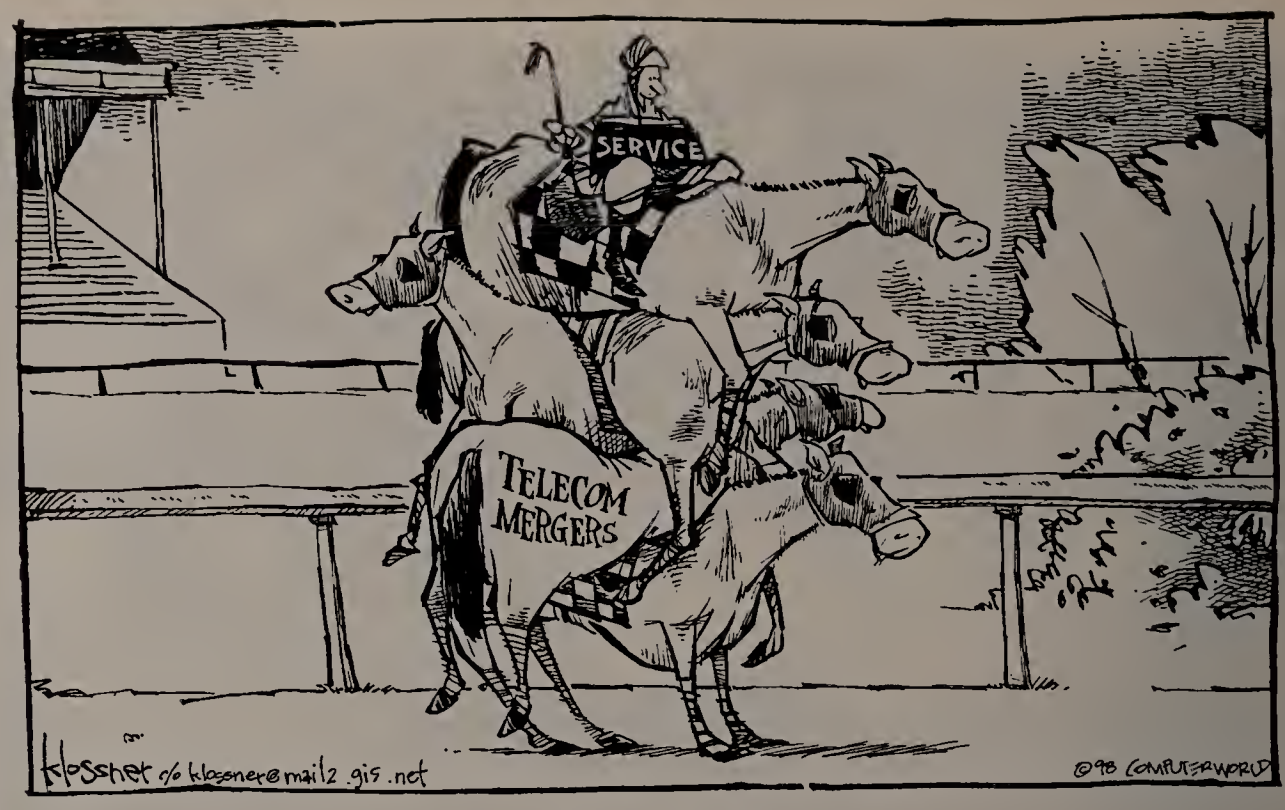

LETTERS

Security managers need to have 'been there, done that'

WHAT A RIDICULOUS bit of news this is: "Experts said the pay scale for experienced information security managers has risen an average of 20% in the past two years, while entry-level salaries have dropped 10% to 15%." ["Veterans vs. newcomers: Salary gap widens," CW, July 6]. Imagine that. A profession in which employers are willing and ready to pay top dollar for people who know what they're doing, based on seasoned experience, instead of something they read from a book. The article's conclusion, however, seems to put it all back together: "So why would any [entry-level person] go into security?" The answer was that security experts can command high salaries later in their careers.

Other recent articles I've seen about salary disparities between neophyte and experienced systems professionals have discussed the opposite problem. Recent college graduates are getting offers in the $50,000 to $60,000 range and expect to grow quickly from there. In the meantime, more experienced professionals started much lower and aren't seeing such rapid growth. But there are just certain areas where it is entirely unwise to trust someone who hasn't "been there, done that." Corporate information security is surely one of those.

Keith Gardner
Systems director
J. Crew, Inc.
kgardner@jcrew.com

Knowledge management may be vital to your strategy

I ENJOYED Allan Alter's managing column "Is knowledge management in trouble?" [CW, June 15].

I haven't seen the Bain study yet, but it sounds like it may have missed the essential point on knowledge management, at least as it's practiced by Lotus and our customers. We see it as a vital capability underlying virtually all management techniques, not a management technique itself.

No one should have to "plug away" at knowledge management.

Things like strategic planning and cycle-time reduction benefit tremendously when intellectual resources are applied in a systematic fashion. No one should have to "plug away" at knowledge management, but rather instill it into all management techniques and processes.

Jeff Papows
President and CEO
Lotus Development Corp.
Cambridge, Mass.

Feature or bug? 'Solution' should be vendor truth

I LOVED ANNE MCCRORY'S article [Jargon Judge, "Solution," CW, May 11]. In a similar vein, I hate it when you find a bug in vendor software, and they slither out of fixing it by calling it a "feature."

Some vendors are just so shameless!

Frank Scafidi
CIO
Elmhurst Memorial Hospital
Elmhurst, Ill.

Planned obsolescence tactic

I WAS INTRIGUED by editor Paul Gillin's observation that "Software makers stub their toes over trying not to demand that users upgrade their hardware. Microsoft always does the opposite. It sets hardware requirements about a generation ahead of where most users sit." ["Moore's strategy," CW, July 6].

I wonder if this is part of the reason so many more PCs are purchased each year than Macintosh computers. Apple has historically followed the software maker's example: providing as much backward compatibility as possible so that old machines can run current software. Granted, this policy changed with the advent of Mac OS 8, but it is still an interesting contrast in policy overall. Apple advocates often make much of the fact that 5-year-old Macs are still useful while 5-year-old PCs can't even be given away. Why do we keep supporting a company that so ruthlessly uses planned obsolescence as a marketing tool?

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Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

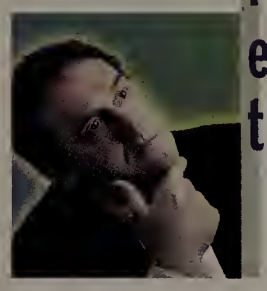
IT hopefuls flow to a Silicon Valley job fair

Joseph E. Maglitta

By noon, traffic from San Jose, San Francisco and everywhere in between had formed a single stream into the rich crescent of Silicon Valley. Car and bus caravans ferrying career explorers inched down Great America Boulevard, past the amusement park, past cool high-tech headquarters to the blue glass pyramids of the Santa Clara Convention Center.

For an industry desperate for people, it was a helluva traffic jam.

Inside the Westech Career Expo, a sea of people choked the cavernous bazaar's aisles. Friendly faces smiled from the 400 or so booths, many framed by sandwich boards with long lists of technology jobs.



For an industry desperate for people, this career expo caused one helluva traffic jam.

Spend a few minutes in the long line waiting to photocopy resumes and any doubts vanish that the U.S. computer industry remains the world's biggest, sweetest and wildest technology skills marketplace.

Here's Aekram Abbas, 29. A mechanical engineer, he just finished a stint in India supervising 25 CAD engineers. Now, armed with a green card and C and C++ skills, he's ready for the U.S. His goal: software engineer. Nearby is Elena Mosso, a 25-year-old Italian materials engineer who considers her field and the Italian computer industry "too boring." She wants a job in high-tech marketing. There are thousands of other job seekers.

Make no mistake: Few, including the most idealistic recent grads, believe Valley streets are paved with silicon. Rather, most voice a determined, realistic hope.

Chin Hung's current employer is for sale. So the 34-year-old Chinese software engineer seeks a "larger, more stable" place. Sanjay Iavad of San Mateo, 25, worked at Documentum until the company "went bad." Now he wants a quality assurance job with stability, Tuesday soccer and Thursday basketball like his old firm. He also wants a chance to convert his student visa.

Many, like Bob Wheeler, a tech recruiter at MCI/Systemhouse, tries to keep the human stream flowing. Some 20% of candidates, he estimates, have visa issues. "It's hard to wait six, nine, 12 weeks for a good candidate," he says. "But you can only go so fast."

The stream flows past industry-leading companies of yesterday, today and tomorrow, past a laid-off middle-aged man who sourly notes, "Not a lot of native English speakers, huh?" It calms at Genentech's booth. There, Stefanie Booker, a 20-year IS/HR veteran, is asked about lobbying to limit H-1B visas.

"My personal opinion? This country was built by people who immigrated here. They brought with them vision, willingness to do hard work, to take risks, to do what they needed to do to advance their family and themselves. This country will be making a very severe mistake if it doesn't allow immigration of educated people to continue."

Besides helping create new jobs and shrinking prejudice and fear, Booker says, foreign-born IS pros can lighten another U.S. burden: a worn-out workforce. "People are struggling to manage home life, children, trying to exercise, trying to work, trying to have friendships," she says. "Would people be willing to work for less and have more free time? I would."

Even with Asia foundering, the U.S. computer industry can still keep many dreams afloat, from Booker's humane workweek to Joseph Ye's search for a software engineering job and permanent visa. "I've had several companies talk to me," beams the 27-year-old Chinese national. With that, he slips back into the stream, in search of gold. □

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The logical starting point for extranets? E-mail

Michael Schrage

You find tremendous excitement — justifiable — about extranets and supranets as tomorrow's major medium for managing key customers and clients.

But how much of their future growth will evolve from the simplest extension of existing "infostructures," as opposed to artful planning by IS professionals?

Put me squarely in the bottom-up camp. There are swarms of simple-yet-intriguing possibilities for creating simple-yet-powerful interactions with customers. For example, when I book an E-ticket on a major airline, it insists on faxing me a confirmation. I've asked it to E-mail me a confirmation instead. It can't. Yet.

Similarly, I blush to confess that my travel schedule has occasionally made me later than I'd like in paying off a telephone or American Express bill. Shame on me. But my tardiness creates an opportunity for my creditors if I give them my E-mail address. Why not a polite E-mail prompt instead of an automated phone call? Why not migrate me to a cheap Web-based "call center" rather than an expensive human? What a terrific chance to leverage an organization's data-mining and customer-care infrastructures.

Frankly, I'm taken aback by just how few of the institutions I regularly deal with take cost-effective advantage of the fact that I'm online. By my count, there are at least eight companies that should be soliciting my E-mail address to make their lives — not just mine — easier. Alas, not one of the eight has so much as asked!

Think about it: Shouldn't Bell Atlantic, American Express and AT&T want my E-mail address? We're not talking rocket science here; we're talking Customer Support 201. By my back-of-the-envelope calculations, the marginal cost of E-mail (relative to that of faxes, phone calls and direct snail mail) makes it an obvious enterprise winner. The fact that E-mail is easy to archive and digitally massage boosts its value proposition.

More important, E-mail can become the gateway to all manner of infostructure integration into the enterprise. Even if you ignore the obvious webmastery gimcracks of embedding URLs in dynamic E-mail — which, of course, would really suck customers into IS — E-mail enables toll-free numbers, other E-mail addresses and even special promotions to be swiftly and cheaply communicated.

Yes, I know all the arguments against spam and for privacy. For the purposes of this column, they are irrelevant. Indeed, there are probably a few million people who would prefer E-mail to the interactive voice response or human customer care provider, just as there are folks who prefer ATMs to tellers.

Eight companies should be soliciting my Internet address. Not one has so much as asked.

IT SEEMS OBVIOUS

The point — and I can't stress it too heavily — is that there are so many ways that E-mail can be used to help automate (let alone augment) customer interaction that it seems obvious that the most cost-effective of tomorrow's extranets will grow from E-mail seeds. The notion that there will be strategic development and deployments of custom extranets reeking of value-added enhancements seems to miss the wealth of opportunities that, with but a smidgen of creativity and investment, are mere keystrokes away.

In other words, I'm betting on simplicity as the swiftest route to opportunity. If you look at the (brief) history of Web successes, bottom-up is the best way to get to the top of a market opportunity. □

Schrage is a research associate at the MIT Media Lab and author of No More Teams! *His Internet address is schrage@media.mit.edu.*

Who needs the lottery? Let's go consulting!

Allan E. Alter

I just got a call from Bernie Barstumbler, IS consultant and roadside psychic. It turned out he was thinking of launching a new business.

A go-getter launches the Fad of the Month Club. This month's special: portals.

"It doesn't matter what I do," Bernie said, "I'll make a mint. Companies can't spend enough on IT consultants. Did you know AltaVista found 43,515 listings for 'IT Services'?"

"Search engines will find 43,515 of anything," I said.

"But listen!" he went on. "IDC says that by 2001, the worldwide market for outsourcing will hit $135 billion. Add the money spent on year 2000 work, benchmarking, electronic commerce, strategy, human resources, SAP . . ."

"And it's amazing that companies have money left for salaries, suppliers and shareholders," I broke in.

"Right. *Someone* has to soak up those last few free dollars. Why not me?"

"Do you have a plan?"

"I've found some basic IS needs that are still being overlooked," Barstumbler said. "Like an IS managers' boot camp. You know those new IT managers coming in from outside IS? They need my help. Throwing those types into IS leadership positions is like throwing kids in the North Atlantic and expecting them to do a perfect backstroke. They need a six-week boot camp to toughen up and get ready for combat. I'll buy 500 acres in the Mississippi Delta, hire retired drill sergeants — they can double as instructors and users — and order recruits to complete a project in 72 hours on two hours' sleep."

"If they can survive you, they'll survive IS."

"Precisely. And while they're working, they'll need two things: takeout food and research. Someone's got to help them make sense of both."

"What do you mean?"

"Take those restaurant reviews you see in the paper. They're no good for high-tech types; who's got time to actually *go* to those places? What IS really needs are reviews they can use: pizzerias, takeout joints, sub shops. Anything that can be ordered and devoured at their desk."

Now I was puzzled. "What does that have to do with research?"

"Not research, dummy — *making sense* of research. After flat food, those IS types consume statistics more than anything else. You know what I'm talking about: '33.4% of NT users,' '18% of retail CIOs,' 'a 0.9 probability.' What do those numbers mean? How do you know they're any good? Who has time to check them out? Solution: Get a statistical consultant."

"I think you need to hone those ideas some more."

"You're right. There's no year 2000 angle. So how about a year 2000 confessional and information laundering service? It's a natural. Companies desperately need to share year 2000 information, but everyone's so scared of lawyers that they won't. A trusted intermediary is the perfect way to share such information."

"But the year 2000 problem won't last forever."

"True," he said sadly. Then he brightened. "That's why I'm starting the Fad of the Month Club. Have the latest trend rushed to your door before the boss reads about it on his next business trip. This month's special: portals!"

"Bernie," I conceded, "looks like you've got it all figured out."

"Yep, I do. There's plenty of money and lots of desperate managers out there in corporate America; all I need is one half-convincing story that catches on and a cup to catch the loot. The spending spigot is open, so let the good times roll!" □

Alter is Computerworld*'s department editor, managing. His Internet address is allan_alter@cw.com.*

What a difference a year makes

David Moschella

There they go again. Prominent software industry CEOs once again have gone to Capitol Hill to warn about the dangers of Microsoft's unchecked market power.

Anybody who regularly reads this column knows that I sympathize with much of what they had to say. But I thought it strange when Messrs. Glaser, Papows and Ellison recently denounced the damage Microsoft is inflicting on RealNetworks, Lotus and Apple.

I couldn't put my finger on it until I spent some time trawling through a bunch of Web site archives. Then I rediscovered what those very same companies were saying just 12 months ago.

On July 21, 1997, Microsoft and what was then Progressive Networks "announced an agreement that will help to define industry standards for the streaming media market. . . . As part of the agreement, Microsoft has also made a minority investment in Progressive Networks."

Rob Glaser, that small company's CEO, added, "We have worked successfully with Microsoft in the past, and this agreement brings our relationship to a new level."

Then, on July 29, 1997, Lotus and Microsoft "announced that they have reached agreement on new initiatives aimed at meeting customers' need for great interoperability. . . . The initiatives include plans for Lotus to ship Microsoft Internet Explorer 4.0 with strategic Lotus products." Lotus President Jeff Papows commented, "We are excited about the current work that we are doing with Microsoft . . . and we look forward to future cooperation."

Finally, on Aug. 6, 1997, Apple introduced its new board of directors, which included Oracle's Larry Ellison. That same day, Apple and Microsoft announced a broad agreement that included patent cross-licensing, making Internet Explorer the default Apple browser and a Microsoft acquisition of $150 million in Apple stock.

Apple's acting CEO, Steve Jobs, said, "We are thrilled at the prospect of working more closely with Microsoft. . . . We are confident that this is the beginning of a much closer relationship between the two companies."

Now, I don't want to be too hard on these gentlemen. Between fear, the lure of power and gold, and the sincere desire to serve customers and establish peace in the IT community, there are many reasons to try to work with Microsoft. Besides, sometimes the folks in Redmond make you an offer that you simply can't refuse.

Nevertheless, it seems fair to say that those deals have proved to be more than a bit naive. By 1997, its all-out assault on Netscape had made it obvious that Microsoft was indeed an unrestrained predator. Why did these executives think they would be anything but next year's lunch?

The CEOs grousing about Microsoft on Capitol Hill sang a different tune last summer.

Technology vendors love to talk about how they thrive in a world of "coopetition." Certainly, there have been many important examples of rivals working together to set standards and accelerate market growth. But how many of those involved Microsoft?

Software Publishers Association President Ken Wasch put it objectively: "For firms that have chosen not to compete with any Microsoft product, the relationship is often very positive. However, for firms seeking to develop products that may compete with Microsoft's own offerings, the relationship can be extremely problematic."

In a recent *Computerworld* interview [CW, July 27], Former Apple CEO Gil Amelio put it colorfully: "Bill is . . . incapable of even letting you have one of the marbles."

The only question now is whether anyone has learned anything. Cooperation and coopetition haven't worked; how about some plain old-fashioned competition? What a novel idea. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is dmoschella@earthlink.net.*

Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

OUT OF TOUCH

In a recent survey of 200 line-of-business managers at U.S. companies:

52% said IS managers talked to them about their needs just once a quarter or less.

73% didn't have a catalog that listed IS services available to them.

56% said they didn't have a formal service-level agreement between their department and IS.

Source: International Data Corp., Framingham, Mass.

Measuring IT . . .

Compass America, a Reston, Va.-based management consultancy, has launched a service designed to analyze business processes and measure information technology value within the banking industry. The service, called Banking Compass, was designed to analyze loan and deposit services, card services and other core bank processes and compare results with top-performing banks.

. . . in bank and book

The Society for Information Management (SIM) in Chicago has released an online publication in support of its working group for measuring the business value of IT. The report is based on several months of research behind the group's Value Measurement Model. The report is available via SIM's World Wide Web site *(www.simnet.org)* at $75 for SIM members and $200 for nonmembers.

HIGH PRIORITY

Percentage of IT budgets dedicated to year 2000 work this year:

Health care	38%
Insurance	30%
Telecommunications	28%
Average company	25%

Base: Survey of 280 companies

Source: Cutter Consortium, Arlington, Mass.

Dealer aim: Keep food fresh

One of the biggest challenges will be getting workers comfortable with the new technology, says Ron Inzer, United Natural Foods

PETER GLASS

By Craig Stedman

A SERIES OF acquisitions helped United Natural Foods, Inc. become the largest distributor of natural food products in the U.S. But all the deal making also left it with a smorgasbord of warehouse management systems to digest.

Three years ago, the Dayville, Conn., company had just two regional warehouses and distribution centers. Now it has eight facilities scattered across the country, and methods of tracking products and preparing orders differ widely. Four of the warehouses still do everything manually.

"We want to be on the cutting edge of customer service in our industry," said Ron Inzer, director of operations at United Natural Foods. "But it's hard to look at eight distribution facilities at one time when the only thing they have in common is the products we store there."

Inzer, who oversees warehousing and transportation activities at the company, is counting on technology to get

Fresh food, page 34

Doctors, not data, pose migration hurdle

By Barb Cole-Gomolski

WHEN MAIMONIDES Medical Center implemented a clinical information system, the biggest challenge wasn't the integration work. It was getting doctors to use the system.

Yet the project has cut costs and improved care during the past six months and increased the number of patients the hospital can care for, said Ann Sullivan, Maimonides' senior vice president and chief information officer.

The system, called Maimonides Access Clinical System (MACS), is based on Eclipsys Corp.'s patient information system, which stores names, addresses and insurance information. A lab

Doctors, page 34

Maimonides' MACS lets doctors view patient records that include images

Kraft IS newcomers cook up career development group

By Allan E. Alter

AN IS CAREER development group that started as an experiment at Kraft Foods last year has become an institution.

PROFESSIONAL RESOURCES

Begun in January 1997 by three college graduates starting their IS careers, the New Information Systems Professional Council (NISPC) now has 110 active members, and its monthly meetings draw between 40 and 50 people from Kraft's Northfield and Glenview sites north of Chicago, said NISPC's chairman, Fred Benardella, 27. That's out of more than 500 IS staff in the Chicago area.

What is drawing newbies to NISPC? The chance for professional development, the ability to socialize with other rookies and the opportunity to do volunteer work, said co-founders Gayatachew Dorsainville, 28, and Courtney Curtis Hadden, 24.

Still, it was the career programs that got NISPC off to a successful start. IS newcomers work in one division such as sales systems or human resources systems, and they know little about the others. So NISPC launched monthly brown-bag meetings that focus on divisional IS groups and their work. They provide newcomers a chance to scout out these organizations.

Other well-attended sessions featured the creators of Kraft's public World Wide Web site and a panel of consultants and

Kraft, page 34

Allstate to sell Y2K expertise

By Julia King

Allstate Insurance Co. never set out to be in the software business. But that's exactly where the insurer's year 2000 project has taken it — with IBM as a marketing partner.

After completing hundreds of thousands of date fixes on its main system for processing premiums a full year ahead of schedule, Northbrook, Ill.-based Allstate is selling the software tools it used on the massive project to other companies.

What differentiates the software, its developers said, is its ability to fix bugs on the fly while legacy applications continue to run. For example, Allstate was able to fix its main policy system — which serves Allstate,

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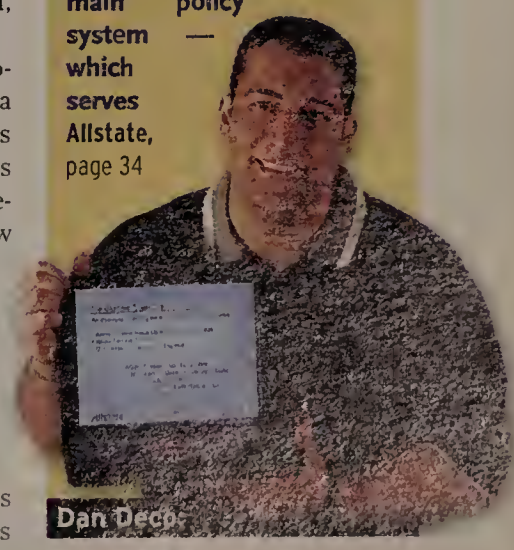

Dan Decot

Allstate devised a run-time condition handler that lets people get to testing faster

Allstate ready to sell time-saving Y2K tool

CONTINUED FROM PAGE 33

about 25 million customers and contains more than than 7 million lines of 30-year-old assembler code — without ever taking the system out of production.

The result was a drastic reduction in project time and cost.

"The technology services industry is wide open. There is an exploding need for services to assist with desktop and system management."
– Frank Pollard, CIO, Allstate

"Two people got it done in three months, compared to what we estimated would be 30 people working two years on windowing or some other method," said Dan Deco, a project manager and co-developer of the tool.

Allstate isn't marketing its tool as a permanent cure-all, however. Instead, Deco said, the tool's alphanumeric compression technique essentially buys companies another 60 years to replace their legacy systems.

For example, the year 2000 is represented by the letter A. The year 2001 is represented by A1. Using a total of nine digits and six letters, "you basically can go through to 2059, which is 60 years from next year," Deco said.

"What we've developed," he said, "is a run-time condition handler that lets people with big year 2000 projects get to testing faster."

HISTORICAL DATA

Because the tool works by counting forward rather than actually changing the date, it also lets Allstate preserve its huge quantity of historical data — some of which goes back to the late 1800s (such as older policyholders' birth dates).

"The good thing about Allstate developing their own tool is that they're in an industry that's absolutely beset by dates. I'm not surprised that they didn't see what they wanted in the market," said Phil Murphy, an analyst at Giga Information Group and a former year 2000 project manager.

Yet Allstate isn't the only user-turned-vendor in the year-2000 tools market. Other users, including Fidelity Investments in Boston and First National Bank of Omaha, are selling tools developed by the companies' in-house information technology groups.

But so far, Allstate is the only one to hint at plans to expand its IT market presence.

"The technology services industry is wide open," said Frank Pollard, chief information officer at Allstate. "There is an exploding need for services to assist with desktop and system management. Since we have proven expertise in these areas, we plan on being part of that explosion." □

Fresh food

CONTINUED FROM PAGE 33

everyone on the same page. United Natural plans to install warehouse management software developed by Optum, Inc. at all the distribution facilities, starting with one in Dayville this fall.

Automating each warehouse should help United Natural keep track of food products that have freshness expiration dates, Inzer said. And the common technical footing is expected to improve the company's order accuracy and let it show a single face to national customers.

United Natural has nearly quadrupled its sales to $750 million since 1994. It supplies food and body-care products to more than 6,500 supermarkets and natural food stores. Off the bat, the Optum software should guarantee that up to 70% of the shipments are mistake-free, Inzer said. Retailers "won't have to open up a box to find out what's in it," he said.

Food distributors such as United Natural "are under enormous pressure to execute better," said Alice Greene, an analyst at Industry Directions, Inc., a manufacturing and distribution consulting firm in Boston.

Single-digit profit margins in the grocery business make productivity improvements a must for stores and their suppliers, Greene said. But a warehouse can't become more efficient "if you have to spend all your time looking for things," she added.

United Natural is spending $3 million to get the Unix-based warehouse software and consulting help from Optum in White Plains, N.Y. Work on the project started in the spring, and the software is scheduled to be running in all the warehouses by early 2000.

Inzer said one of the biggest challenges will be getting warehouse workers comfortable with the new technology, which also includes a mix of forklift-mounted, handheld and wearable radio-frequency devices that will link users to the warehousing system.

"If you put the time clock in a warehouse in a different spot, it's a big change," Inzer said. To help workers adjust, United Natural plans to augment classroom training sessions with demonstration videos shot in each warehouse. And ultimately, the technology should let warehouse order pickers "do more and not work any harder," he said. □

Doctors, not data, pose hurdle

CONTINUED FROM PAGE 33

information system, radiology application, billing system and scheduling application are integrated with MACS. The system lets doctors order drugs and review lab results, vital signs, nurses' notes and test results online.

DATA ENTRY

Unlike automation projects that require mainly administrative staffers to change the way they work, this project required physicians to do data entry — often for the first time.

And most are community physicians who aren't paid by the hospital, further reducing Maimonides' leverage.

Margret Amatayakul, vice president at Dorenfest and Associates, a health care information technology consultancy in Chicago, said it isn't uncommon for doctors to resist patient information systems because "there is little direct payback for them at the point of care." Adding decision-support tools, such as an alert of a potential drug conflict when a prescription is ordered, helps doctors to see the benefits, Amatayakul said.

Still, it can be a tough sell. "What used to take me 30 seconds to scribble, now takes me two or three minutes [to key in]," said Dr. Allan Strongwater, director of orthopedic surgery at Maimonides. However, the ability to access the application from his laptop computer let Strongwater consult on a case while visiting relatives in Connecticut. The system "may take a little longer up front, but down the line it will save me time," Strongwater said.

To help sell physicians on the idea, Maimonides built a system, called OfficeMACS, which provides online access to MACS. The center installed the system in physicians' off-site offices at no charge.

The system lets doctors order drugs and review lab results, vital signs, nurses' notes and test results online.

One feature that went a long way with doctors was the ability to look up beeper numbers.

The hospital also temporarily put health care professionals on the IS payroll by forming a Nursing Task Force and a Physician Task Force, whose job it was to resolve workflow and quality assurance issues related to MACS.

TRAINING

The hospital gave each user about four hours of training. That included about two-and-a-half hours of classroom training, plus time with IS personnel and "super users" who were able to help out when needed.

It also established a help desk to offer support 24 hours a day.

Within six months of implementing the $21 million system late last year, the average patient stay was reduced by three-quarters of a day, and re-admission rates declined by 8.7%. Emergency room turnaround time decreased 50%, from three hours to 90 minutes, and that extra capacity allowed the hospital to accommodate more than 2,800 additional outpatients. □

Kraft career development group

CONTINUED FROM PAGE 33

corporate IS professionals talking about alternative IT career paths. Many of those events are open to the entire Kraft IS community.

NISPC also holds computer-oriented community service events, such as a training program about the Internet for kids and their parents.

What's next for NISPC? Meetings featuring managers from other Kraft functions, such as brand managers from the marketing department, and sponsoring new hires to help them acclimate to Kraft.

Kraft management has supported NISPC from Day 1. Margaret Schweer, Kraft's director of human resources for IS, gave Dorsainville and Hadden a list of new IS employees who started at the company between 1994 and 1996. Schweer is a booster because "a sense of IS community is important at Kraft," and NISPC helps create one, she said.

Even the program on consulting vs. corporate careers received her support; Kraft management didn't try to censor the consultants. With retention, "you as an organization have to confront the tough issues, like 'should I go into consulting?' " Schweer said. □

Tips for successful IS events from Kraft's New IS Professionals Council:

- Create career-oriented programs
- Schedule events during, not after, work hours
- Always provide food at lunch-hour events
- Rotate meetings among several locations
- Provide extra time for socializing
- Solicit support and resources from senior management

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Internet Commerce

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Briefs

Set up an auction site

FairMarket, Inc. in Woburn, Mass., last week announced a program to let merchants set up their own business-to-business online auction sites. Participants' goods will still be posted in the overall *www.fairmarket.com* listings as well as on a specialized page where a company's customers can browse directly. Prices range from $19.95 to $199.95 per month.

Price-hunting guide

Eight specialized comparison shopping services have joined forces to create a new price-hunting guide at Comparison-Shopping.Net. The Austin, Texas-based site will include prices or rates for books, credit cards, digital cameras, investing resources, life insurance, long-distance rates, mortgages and World Wide Web hosting.

Subscriber drive

Borrowing a page from the bookselling industry, the *Wall Street Journal Interactive Edition* last week launched a free affiliates program (*http://public.wsj.com/affiliates*) that is aimed at boosting paid subscriptions to its service. Participating Web sites can post free headlines and market indexes on their own sites and receive commissions for online *Journal* subscriptions they generate. Those programs have been popular with online booksellers, which allow affiliates to get a portion of the revenue from sales made from their sites. The online *Journal* is published by Dow Jones & Co.

AD CLICKERS

Top reasons users interact with online advertisers

Trust brand name	25%
Promise of "free stuff"	14%
Interested in browsing	10%
Attracted by blinking ads	1%

Base: Survey of 1,001 adults; multiple responses allowed

Source: FreeRide Media, LLC (www.freeride.com), New York

• Quicken and Money users take note

Web banking fees on the rise

By Sharon Machlis

CITING THE HIGH cost of supporting home banking for two popular money management software packages, BankBoston last month told customers that it is increasing monthly fees for Internet banking with Intuit, Inc.'s Quicken and Microsoft Corp.'s Money.

The move highlights the changing online strategies banks are developing as their own online offerings evolve.

Some Quicken users will be paying more for online access to their bank accounts

BankBoston is raising its Quicken and Money rates — which were free for account access and $5 monthly for bill payment — to $6.95 a month for either service. Also, the bank is no longer waiving fees for Premium Value Package customers who have $10,000 to $25,000 invested with the bank.

"It's a very expensive product for us . . . much higher than any of our other home banking products," said Neal Wolfson, a senior product manager at BankBoston in Waltham, Mass.

ONLINE STRATEGIES

Wolfson declined to discuss the specific costs involved. Both Intuit and Microsoft said they don't charge banks any transaction fees, although Intuit does charge banks to have their logos and other branding features appear on its Quicken screen interface. Instead, fees come from the third-party vendors banks use to make their connections to Intuit and Microsoft.

With the emerging Open Financial Exchange standard, some major banks next year are likely to consider making the connection directly over the In-

Web banking, page 38

'net security best policy for insurer

By Laura DiDio

WITH MORE THAN 78,000 employees on four continents and 50 million customers, Prudential Insurance Company of America had a security challenge.

It needed a common security mechanism to safeguard its data and Internet-based transmissions worldwide. And it was crucial that the new security architecture be easy for employees to use and network managers to administer.

The company settled on GetAccess, a World Wide Web security package from EnCommerce, Inc. in Santa Clara, Calif. [CW, April 27]. GetAccess enables organizations to authenticate and manage thousands of users regardless of geographic location. Users — employees or customers — sign on using a password and ID, view a personalized menu that shows what they have access to, then access any resource for which they are authorized.

'net security, page 38

Prudential's Mike Mandelbaum: GetAccess fit the bill

Not all search engines are created equal: Cases in point

By Carol Sliwa

AMOCO CORP. might want to ring up James Miley for a tip or two.

The Web page that the self-described small-business man built for his service station, Miley Amoco Service in Robinson Township, Pa., was the No. 1 result on a keyword search of "Amoco" with HotBot's search engine.

As just about any World Wide Web surfer knows, not all search engines are created equal. Typing in a simple company name on one search engine might quickly lead to the home page. Using another, it might mean the start of a wild adventure.

"The search process is ex-

Search results, page 38

LOST AND FOUND

When you search for a company, the corporate home page isn't always the first thing that comes up

Search engine: HotBot
Search word: Mobil

1. IWB Homepage
   Immobilien Real Estate Wohrer Buchgeher.
2. Bob's Mobil Mart
   Route 6A & Main St., Orleans, MA 508-255-0700 7 days a week, 365 days a year.
3. mobiler pc-service
   mobiler pc-service g. reim. wir bieten ihnen unseren servicevor ort, ohne lange wartezeiten - sie rufen an - wir kommen.
4. Mobil Exploration and Producing Australia
5. Laika Reisemobile ein MuB fur Kenner

Third World crafters go online

By Sharon Machlis

DANIEL SALCEDO, who holds a doctorate in operations research, claims he "was a geek before it was cool." But he also has long been passionate about the developing world, serving as a Peace Corps director in the Dominican Republic and doing other non-profit work throughout Latin America.

"I was always having to choose between my head and my heart," he said.

Now he has merged the two.

With grants from the World Bank and U.S. government, among others, Salcedo co-

Crafters, page 38

Daniel Salcedo (right) says "distances evaporate" over the 'net

Search results surprising

CONTINUED FROM PAGE 37

tremely flawed," said Julia Pickar, an analyst at Zona Research, Inc. in Redwood Shores, Calif. "Although the major search companies are trying to imbue some human logic in these searches and help users get more relevant results, it will remain a hurdle because of the dynamic nature of the Web."

Corporations trying to make sure their home pages rank first confront not only inconsistent search engines, unexpected competition from small businesses such as Miley Amoco and their own multiple uniform resource locators (URL), but they also have to contend with pranksters who try to dupe the search engines.

For instance, a search last week for "Exxon" with the WebCrawler engine returned "Oil Spill Public Information Center" as the No. 1 result, a notch ahead of "Exxon Company, USA," among the items returned on the initial screen. Even worse for Exxon, the No. 18 result was "Adultos Sexo Live hardcore . . ." (WebCrawler has since updated the index.)

Home pages often have the company name and images but very little content, whereas the oil spill site had multiple references to Exxon. "Documents are weighted according to the full volume of text on the page," said Kris Carpenter, director of search services at Excite, Inc., which acquired WebCrawler from America Online in 1996.

The "Adultos" porn site may have submitted false content to the spider that is crawling the Web, Carpenter said.

Another trick is inserting words in tiny fonts or text in the same color as the background of the Web page.

SMALLER INDEX

An additional problem WebCrawler faces is that it indexes only 2 million pages, compared with more than 50 million on Excite. That means aberrant pages gain more weight on WebCrawler, Carpenter said.

The major search engines, including Yahoo, Excite, Infoseek, Lycos and AltaVista, typically do a good job getting users to Fortune 100 companies' home pages, as a recent *Computerworld* experiment with 30 such companies on those search engines demonstrated. The corporate home page may not always be the first listing, however.

LOOKING FOR EXXON

Search engine: WebCrawler
Search word: Exxon

Results:
1. Oil Spill Public Information Center
2. Exxon Company, USA
3. Exxon: Where We Are

Top 25 also included:
- Chanticleer Log Cabin Bed & Breakfast
- Adultos Sexo Live

FirstPlace Software, Inc. in Joplin, Mo., claims its software product can help companies achieve top positions in search engine results. FirstPlace and Response Direct, Inc. in Weston, Mass., did a study of Fortune 100 companies and found that only 42% are using meta tags (search keywords embedded into the Web page), and only 21% scored top 10 hits for their keywords.

Miley's advice?

- Keep it simple. "You don't want to have a lot of whiz-bang stuff," he said.
- Use meta tags. "I learned that one reading articles. How to write them properly. Where to place them in the code. Nothing real fancy. Just keywords that you feel your customer might type in a search engine to try to find you," Miley said. □

Crafters go online

CONTINUED FROM PAGE 37

founded a project aimed at helping Third World craftspeople sell their goods on the 'net.

"What we're talking about is reaching out to the far corners of the world," he said. "Once you get on the Internet, the distances evaporate."

Head to some islands off the coast of Panama — where many of the Kuna Indians live without electricity or phone lines — and electronic commerce may seem an unlikely endeavor. But Kuna women are among those participating in the project, and their traditional "mola" appliques are for sale at *www.peoplink.org*.

Participating artists with limited access to the Internet can check for orders periodically or sell their goods to resellers in countries with better access.

INTERNET LESSONS

PeopLink staff, interns and volunteers bring computers, modems and video cameras to the craftspeople, explaining how to use the Internet to send information about their wares and receive messages about orders. They have visited artists in South America, Africa and Asia to find goods for their site.

PeopLink keeps a small inventory at its Kensington, Md., headquarters, and orders are shipped from there. Eventually, the organization hopes to set up a system where orders are filled from the country of origin, cutting costs further.

Building the initial electronic-commerce site was fairly straightforward, said technical coordinator Ted Johnson, also a former Peace Corps volunteer (in Cameroon) who later did database development work at Motorola, Inc. Now the challenge is to market and promote the site amid so many thousands of others on the World Wide Web. Once people find the site, about 2% of visitors actually place orders.

Purchase deals vary widely, but PeopLink says it generally pays craftspeople about 20% more than the going rate for exported products. Once items are sold, profits are also shared with the producer.

"I think it's excellent," said Aaron Hirsch, consultant and research assistant for the World Bank's Infodev program. Infodev, which funds information technology pilot projects for the developing world, gave seed money to PeopLink.

"It's one thing we're watching very closely. Everything's in place," Hirsch said. "It's not easy. It's a new medium; it's a way people haven't shopped before."

The Internet is attractive because it costs little to update or change a catalog once a system is in place, said PeopLink project manager Kimberly Dinn. A full-color catalog can cost $200,000, she said.

The Asha Handicrafts Association, an organization for craftsmen in India, hopes half its sales will come from the Internet eventually — although, so far, there hasn't been any revenue via PeopLink, said Executive Director Lucas Caldeira. "[PeopLink] also made many producers computer and Internet literate, which is a wonderful thing," he said.

"In spite of my Peace Corps background, my heart really is in the private sector," Johnson said. "The commercial world is something that the nonprofit sector can't ignore." □

'net security best policy

CONTINUED FROM PAGE 37

"We needed to provide a common, manageable security [scheme to] provide our end users and customers with a common security front end that offered single sign-on capabilities. And GetAccess fit the bill," said Mike Mandelbaum, a Prudential vice president of information technologies. "We did consider a couple of competing products that claimed to offer more, but they were overkill for us in terms of features and pricing."

SECOND LOOK

GetAccess starts at $50 per seat, with volume discounts available.

Michael Goulde, an analyst at Patricia Seybold Group in Boston, said one of GetAccess' chief competitors is Netegrity, Inc.'s SiteMinder. "The main difference between GetAccess and SiteMinder is that GetAccess is positioned more for intranet applications and applications that are being shared with business partners and supply chains," Goulde said.

The business case for such a security infrastructure was clear, Mandelbaum said. "Prudential's corporate mandate is 'One Prudential,' " he said. All business units — Prudential Insurance, Prudential Investments, Prudential HealthCare, Prudential Real Estate and Prudential Bank — are putting up Web sites under the Prudential umbrella.

Until now, Mandelbaum explained, Prudential's security policies and rules varied according to the business unit. Often customers access the various Web sites to check the status of an insurance or health care claim or to see current mortgage rates. Until now, they needed different passwords and log-ons for each site. That was "a nuisance," he said.

And that's a problem Prudential shares with many large firms constructing intranets and extranets. A recent report by Maribel Lopez, an analyst at Forrester Research, Inc., a Cambridge, Mass., consulting firm, estimates that more than half of the Fortune 1,000 companies are using extranets today. That explosion has given information technology departments "huge management and security headaches," the report said.

Prudential is now deploying GetAccess, which runs on a Sun Microsystems, Inc. Ultra-450 midrange platform, and the system should be fully deployed next month, said Lou Grunfelder, a Prudential systems manager.

The payoff will be immediate. "Having a single, secure sign-on capability will cut support costs, reduce the number of security systems that our developers need to build and support and reduce the number of systems that our auditors need to manage and track," Mandelbaum noted.

Tom Wisniewski, a Prudential systems technical specialist, said deploying the Web security package also lets Prudential build its Internet applications however it wants. "That lets us leverage our existing software investments," Wisniewski said. □

Web banking fees on the rise

CONTINUED FROM PAGE 37

ternet, said Susan Weinstein, vice president of the online financial services group at Wells Fargo & Co. in San Francisco.

MAINTAINING CONTROL

But even if banks can cut the third-party fees, many large institutions prefer their own online services because they have control over the interface.

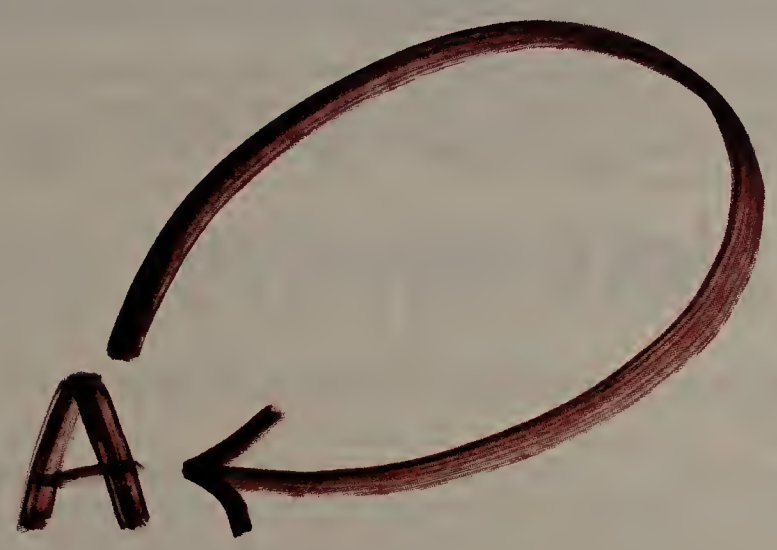
Some of those organizations offer added features, such as loan applications or address changes, not available with Quicken or Money.

Of the 470,000 Wells Fargo customers who bank online, about 400,000 use the bank's World Wide Web site, Weinstein said.

BankBoston has 240,000 HomeLink users, according to Wolfson.

For now, HomeLink users dial in to the bank's network, but Wolfson said the bank will likely offer online banking services on its Web site later this month. □

IN THEORY, YOU WERE SUPPOSED TO GO DIRECTLY TO IMPLEMENTATION OF YOUR SAP ENTERPRISE SOFTWARE.



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Briefs

WHY THEY WATCH

What is your organization's primary reason for monitoring message system usage?

Base: Survey of 208 companies via the Internet

Sources: Tally Systems, Inc., Hanover, N.H.; *CIO* magazine; and International Data Corp., Framingham, Mass.

Linking 6,000 workers

Equistar Chemicals LP, based in Houston, said it will deploy document management software from Toronto-based PC Docs Group International, Inc. to link 6,000 employees in 18 locations throughout the U.S.

Equistar officials said the company will standardize on PC Docs' PowerDocs and CyberDocs software for document management and will integrate those with its current SAP AG applications. PC Docs officials said it is the largest order and licensing deal the company has signed in the manufacturing sector.

Ethernet standard

A standard for running Gigabit Ethernet over twisted-pair wire could be ratified by next March, according to The Gigabit Ethernet Alliance, an industry association driving development and deployment of the technology. The draft standard specifies running Gigabit Ethernet over unshielded Category 5 twisted-pair over distances of up to 100 meters. The IEEE approved a standard for Gigabit Ethernet over fiber in June.

Users drum fingers for NT security

By Sharon Gaudin and Laura DiDio

THOUGH MICROSOFT CORP. promises its Windows NT users greatly improved security in Version 5.0, corporate information systems managers and developers are frustrated at the wait ahead of them.

Not to mention the potential security breaches they face in the meantime.

Microsoft's security gurus have started to show off their new Kerberos security technology, which was designed to make it easier to give authorized users access to information and to lock down critical information for safekeeping. But though the technology sounds good, users know they won't get their hands on it until NT 5.0 arrives. Microsoft won't put a date on that, though users and analysts

NT users, page 42

FCC's 2000 report on telcos disputed

By Matt Hamblen

THE FEDERAL COMMUNICATIONS Commission recently reported that 20 large voice and data carriers, which control 98% of the nation's access lines, generally expect to be ready for year 2000 problems by the second quarter of next year.

COMPUTERWORLD EXCLUSIVE

That finding, announced at a recent Senate hearing, confused some analysts and observers who are hearing much less optimism from large banks and other big voice and data customers about the readiness of networks and billing systems.

US West, Inc. told businesses in New Mexico it wouldn't be year 2000-ready until next July and isn't planning any testing with business customers, according to William C. Lazarus, a consultant at Integrated Health Services, Inc. in Albuquerque, N.M., who attended a meeting with the carrier in June.

US West is among the 20 companies that the FCC feels confident will be "generally" prepared by the middle of next year. A US West spokeswoman said the company doesn't plan to test year 2000 readiness with end users. The spokeswoman wouldn't disclose what the company is spending on repairs. It does expect to be ready by the

FCC, page 42

Where date problems occur in networks:

Network management software	Almost 100%
Voice networking equipment	75%
Data network devices	25% to 35%

When will Y2K-ready products be available for installation?

Third quarter, 1998	89%
Year's end, 1998	2%
First quarter, 1999	5%
Sometime during or after second quarter, 1999	4%

Source: Bellcore, Morristown, N.J.

Year 2000 spurs mail swap

▸ *Two organizations try to beat the clock*

By Roberta Fusaro

REASONS 2000 and 2001 for moving away from your old LAN-based E-mail system: Your CC:Mail or Microsoft Mail software may not be millennium-compliant. And if you haven't started replacing your old system, analysts say, you may already be too late.

But Vanderbilt University Medical Center in Nashville and Johnson Controls, Inc. in Milwaukee are both moving from older Lotus Development Corp. CC:Mail clients to Lotus Notes. And both are confident they will get their new systems rolled out by the middle of next year.

"It would be naive for me to say we're not concerned, but with an organized process, we believe we'll have enough time to get there," said Phyllis Combs, director of networked computing support at Vanderbilt Medical Center.

The medical center is moving 9,300 users of CC:Mail DB6 — which isn't year 2000-compliant — to Lotus Notes. Combs said the medical center has consulted with analysts and vendors about year 2000 deadlines, "and at no time did the work and goals seem unattainable."

Vanderbilt Medical Center

Year 2000, page 42

MARK TUCKER

Vanderbilt University Medical Center's Phyllis Combs: "It would be naive for me to say we're not concerned"

Check Point simplifies virtual nets

By Bob Wallace

FIREWALL GIANT Check Point Software Technologies, Inc. has announced products that promise to streamline the creation, administration and maintenance of virtual private networks (VPN).

Each of those is a long, arduous and costly process that can devour precious information systems resources, making the IP-based networks less attractive to large corporations, analysts said.

Check Point is simplifying management of VPNs, eliminating headaches.
– Eric Zines, TeleChoice

"The single biggest thing Check Point is doing is simplifying the overall management of VPNs," said Eric Zines, an analyst at consultancy TeleChoice, Inc. in Dallas. "That alone will eliminate lots of headaches for IS managers."

The vendor's RemoteLink family of devices integrates firewall features and router duties along with VPN hardware functionality in one box, saving IS

Check Point, page 42

NT users

CONTINUED FROM PAGE 41

expect it anytime from mid-1999 to sometime in 2000.

Neil MacDonald, an analyst at Gartner Group, Inc. in Stamford, Conn., recently wrote a report called "NT Security: When Good Enough Is Not Enough." In it, he wrote that NT security will be insufficient until the domain architecture and the NT LAN Manager (NTLM) have been replaced in Version 5.0. Users should hold off adoption until the new version has proved stable — and that might not be until mid-2000.

Windows NT 5.0 security boosts Microsoft officials are touting include the following:

- Delegation authentication
- Transitive Trust
- Ability to encrypt files

MacDonald added that users will have to rely on supplemental security tools and utilities, which further increase the time and expense involved in constructing a secure NT network.

RIGHT FROM THE HACKERS

At the recent Black Hat '98 security conference in Las Vegas, many security administrators came face-to-face with current and former hackers who described the latest methods of attacking NT. It didn't help that Microsoft security officials Karan Khanna and Paul Leach, who presented a session on forthcoming enhancements to the NTLM protocol, couldn't say just when users would actually see those enhancements.

Users and security experts at Black Hat noted that they can't secure their networks with promises — especially with the growing popularity of Windows NT making it a favorite target of hackers, according to Mark Fabro, director of risk assessment at Secure Computing, Inc. in San Jose, Calif., which sponsored the Black Hat briefings.

Steven Morrison, network administrator at Jones & Associates, an institutional investment firm in Los Angeles, was left unsettled by all of the new ways to hack NT.

"I was surprised at the level of expertise I saw here and all the new hacks," Morrison said while at Black Hat. "It makes me question just how secure our networks are. I'm not too worried about amateurs, but someone with the knowledge and resources could hack into just about anything, including NT, no matter how secure I make it."

But Khanna said help is on the way. He said NT 5.0 will give users delegation authentication, allowing them to retrieve information off a company server even if they can't directly access it to show their identifying token. Now, it is difficult to enable a user to ask one server to retrieve information off a second server or to ask someone else on the system to get it.

NT 5.0 is also touted for Transitive Trust, a security feature that lets users who have been given a certain security clearance offer the same clearance to others.

So if corporate headquarters trusts a branch office and that branch office trusts another branch, security trust is extended to that second office.

"It makes management easier. There's nothing that Transitive Trust enables that you can't do today, but you have all these extra steps to handle without Transitive Trust," Khanna said. "It can become quite unwieldy if you do it all on your own." □

FCC telco report disputed

CONTINUED FROM PAGE 41

GLITCH WARNING

Analysts said they don't expect processing voice and data calls domestically to be much of a problem but billing and network management software may cause big glitches.

Network switches aren't affected by dates contained in data sent over the network, but the switches need to be compliant with other date-sensitive software, analysts explained.

For example, when a routing table changes for new phone numbers, that information includes dates when the old numbers end and the new ones take effect.

If an older switch can't handle the date change, as many do not (see chart, page 41), then the routing table might not be instituted properly.

"It's not just a matter of carriers' switches working well," said analyst Lisa Pierce at Giga Information Group in Cambridge, Mass.

Giga's Lisa Pierce said a five-minute phone call starting Dec. 31, 1999, and ending in the next century could be perceived as lasting more than 100 years and cost $12 million instead of $1.25

"If I'm a customer, and if billing turns into a problem area and it's late or inaccurate, it might take months of my people's time to get it fixed. And if you don't pay your bill, you lose service," Pierce said.

Billing problems could afflict phone calls after Jan. 1, 2000, but Pierce said a five-minute phone call starting Dec. 31, 1999, and ending in the next century could be perceived as lasting more than 100 years and cost $12 million instead of $1.25

Lazarus said the FCC's statement at the hearing was "disappointing" and urged federal officials to require standard compliance measures from carriers and then issue certifications of readiness.

Sen. Robert Bennett (R-Utah) told FCC Commissioner Michael Powell at the July 31 hearing in Washington that he felt the agency and carriers are painting a "rather rosy picture" compared with that from other users he has heard from.

Powell testified that the FCC's general assessment of the nation's wireline telecommunications industry "remains positive" but sought to answer Bennett's worries this way: "I don't think it's rosy at all. I have some comfort we have the institutions in place" to solve the problem. □

Year 2000 problem spurs E-mail swap

CONTINUED FROM PAGE 41

wanted to standardize on one messaging system. It has about 100 CC:Mail post offices, but only 40 are centrally maintained by the information systems center. The rest are controlled by business units.

AGGRESSIVE GOAL

The medical center's aging assessment project started in April, and the decision to move to Notes was reached in mid-July. The goal is to have everyone off CC:Mail by next June. Combs called that an aggressive but attainable goal.

While the move to Notes was prompted by the date-change issue, Combs said other benefits will be the calendaring/scheduling, groupware and collaboration abilities. For the most part, those functions have all been done manually — employees carry paper calendars and organizers — or automated at the departmental level. "We need an institutional messaging system," Combs said.

The company is considering migration tools and/or services from Wingra Technologies, Inc. in Madison, Wis. And IBM Global Services helped in the planning phase at Vanderbilt.

"With constant acquisitions, mail was a moving target for us," said Wolfgang Sebold, messaging manager at Johnson Controls.

"Basically, we didn't care what kind of E-mail system you used" as long as it could be processed by a server using the Simple Mail Transfer Protocol E-mail standard, Sebold said. That left the world's leading automotive seating manufacturer with more than 300 CC:Mail post office boxes to manage and no standard messaging system.

Johnson Controls hopes to reduce mailbox administration costs and gain World Wide Web and calendaring/scheduling capabilities when it starts moving its 24,000 users worldwide to Notes in October.

The company has about 17,000 CC:Mail clients and 5,000 Notes clients. Everyone should be on Notes by May 1999,Sebold said.

About 10% to 15% of large organizations still haven't decided what to do with their older E-mail clients, said David Ferris, president of Ferris Research, a San Francisco-based messaging analysis firm. But the migration needs to be done by mid-1999 to allow six months for testing and training, he added.

Some companies may have put off the move because they are too busy dealing with other year 2000 system problems, Ferris said. And some businesses underestimate the scope of the project. Thinking it is as easy as plugging in one system for another, they aren't planning for complex message archiving and storage problems, he said. □

Check Point simplifies virtual networks

CONTINUED FROM PAGE 41

managers from having to buy, configure and manage three boxes at each site.

The integration would give users one vendor to deal with when problems arise, rather than having several points of contact for products from multiple vendors. Integrating functionality from multiple devices into one box is a change for Check Point.

Check Point's Certificate Manager automates the labor-intensive manual process of managing digital certificates, which are used to authenticate users seeking access to a VPN. The product simplifies management of this process by letting network administrators easily add and delete users from the network.

And the vendor came up with software, called VPN-1, that supports the Lightweight Directory Access Protocol and simplifies VPN setup by letting IS managers add VPN users to their current corporate directory.

RemoteLink is shipping with prices starting at $2,995, and Certificate Manager will ship in the fourth quarter. The VPN-1 software is shipping with prices starting at $2,495. □

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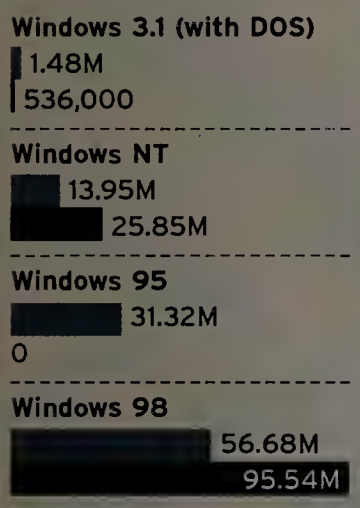
Software

Databases • Development • Operating Systems

Briefs

Projected new shipments of operating systems worldwide

■ 1998 ■ 1999



Source: Dataquest, San Jose, Calif.

Oracle financials

Oracle Corp. last week announced a fixed-price financial applications bundle aimed at midsize companies that want to avoid year 2000 fixes on their current systems. The bundle includes the Oracle Applications Release 11 finance module, a database and consulting services, sources said. They added that Oracle, in Redwood Shores, Calif., will make "a strong commitment" to finish installations before the year 2000 deadline.

Java training software

Evanston, Ill.-based ReCor Corp. this month will ship a beta version of Skillspace, Java-based training software that lets companies deliver interactive training via a World Wide Web browser. Skillspace will be released in the fourth quarter. Pricing will be announced at that time.

Isocor line

Isocor, an Internet messaging and directory software developer, last week unveiled a line of meta-directory products called MetaConnect. The products will make it quicker and easier to unify pockets of data scattered throughout a company, officials said. MetaConnect will be released in October. Pricing will be $5 to $17 per user.

HP preps Unix 9.x users for 2000

By Jaikumar Vijayan

HEWLETT-PACKARD CO. is throwing a year 2000 life raft out to users marooned on an obsolete version of its Unix operating system.

The Palo Alto, Calif.-based company last week announced a series of initiatives intended to help customers who use its HP-UX 9.x operating system migrate to newer year 2000-compliant HP-UX versions and supported applications.

The moves reverse an earlier decision by the company to halt by the end of this year all support for the several versions of HP-UX 9.x still in use. Now HP, which has announced two major upgrades to its operating environment since Version 9.x, is pledging continued support through next year.

"It's been a bit of a push-and-pull situation. Some of our customers kept coming back to us for help in making their 9.x software year 2000-compliant," said Janice Chaffin, general manager at HP's high-performance systems division. "For our part, it's a push to get these customers to a safe place."

HP is offering all Version HP-UX 9.x customers a free upgrade to HP-UX 10.20 as well as to HP applications, middleware and tools that are supported on the newer operating system.

For users who are interested in upgrading hardware as well, HP will offer short-term, low-

HP Unix, page 46

HP's year 2000 program for HP-UX 9.04 and earlier versions:

- Free upgrade to HP-UX 10.20 and 11 and supported software
- Customers without service plans have access to free HP-UX upgrade and selected software
- Availability of HP's Cure2000 Y2K service and tools
- Trade-in rebates for old HP 9000 servers
- Low-cost financing of test and development systems

Printer refines customer service

▸ *Web app helps in quality control*

By David Orenstein

HUGE AMOUNTS of crucial business data come together at Imation Corp.'s printing and publishing products plant in Kearneysville, W. Va., but until recently, it didn't come together easily for the plant's workers.

The plant runs around the clock, and about 180 workers produce a variety of printing house essentials such as offset plates, chemicals and films.

Customers with questions or complaints about quality used to call in and wait while workers struggled to manually match up the information on two client computers on their desks, said Jim Jennis, senior manufacturing and information technology specialist at the plant.

Imation's Jim Jennis says the system is well on its way to paying for itself

Then one day in May — in eight hours — Jennis and three IT colleagues developed a World Wide Web application that brought together the two information stores: production and quality data in a Digital Equipment Corp. OpenVMS cluster that runs legacy RMS databases, and customer order and inventory data in an Oracle Corp. database that runs on HP-UX.

Now employees look at all the data through a Netscape Communications Corp. front end.

Encouraged by the results of the integration, Jennis has begun to re-engineer the entire plant's IT

Printer, page 46

Expense, buying tools merge

By Carol Sliwa

Two markets that some analysts predict will converge in coming months are corporate purchasing software and travel and expense management software.

Portable Software Corp., a Redmond, Wash., maker of expense management products, last week kicked off the expected trend when it announced its acquisition of 7Software, Inc., a Palo Alto, Calif.-based maker of business-to-business electronic procurement packages. In conjunction with the announcement, Portable said it is changing its name to Concur Technologies, Inc.

Ariba Technologies, Inc. in Sunnyvale, Calif., and RightWorks Corp. in San Jose, Calif., are among the companies that have stated intentions to get involved in the travel-and-expense space. Ariba expects to have a product out next month, and RightWorks is due to release its offering in the first quarter of next year.

Erina DuBois, an analyst at Dataquest in San Jose, Calif., said Netscape Communications Corp. also has signaled it might offer travel-and-expense software, but she said she is unsure if Netscape will develop it or acquire a company that makes it.

REVIEW

Office 2000 an option for the intranet-savvy

By Howard Millman

IF YOU HAVE fixed plans to integrate Internet and Hypertext Markup Language (HTML) components into your document creation and transmission activities, consider an upgrade to Microsoft Corp.'s Office 2000 when it ships next year. If not, the other improvements planned for Office 2000 may not warrant the time, cost or effort to upgrade.

Continuing to embrace all things Internet, Microsoft's first beta release of its new Office

Office 2000, page 46

PRODUCT REVIEW

▸ *Office 2000 (beta)*

MICROSOFT CORP.
Redmond, Wash.
(800) 426-9400
www.microsoft.com/office

Grade: B+ (for those with intranets); B (for all others)

Shipping: Early next year

Price: Not set

Pros: Good Web integration, including Web-based search tools and Web server access

Cons: Microsoft-centric integration; new HTML "companion" file system may cause compatibility issues with non-Microsoft Web browsers

HP Unix

CONTINUED FROM PAGE 45

interest hardware leasing options and financing plans. In some cases, that offer could be 50% cheaper than typical lease plans from the company, Chaffin said.

Still, migrating from Version 9.x to 10.20 will be a major hassle for many customers, warned Clifford Melheim, a systems support engineer at Avnet in Chandler, Ariz.

Just like HP's other proprietary environment, which is called MPE/IX, HP-UX 9.x is a tightly bundled operating system with an integrated database, middleware and applications, Melheim said.

Upgrading to Version 10.20 involves not just an operating system overhaul, but also substantial tweaks to the applications and the database, he added.

"Rather than tackle the upgrades, a lot of users are probably going to replace their [environment] with year 2000-ready packaged applications," Melheim said.

The National Capital Park and Planning Commission in Riverdale, Md., for instance, plans on doing just that with several of its MPE applications, said Richard Osuri, manager of the commission's computer services division.

"Trying to fix your 2000 problem while also migrating to a new database is just too difficult," he said.

"I would say [Version 9.x] users trying to upgrade to a newer environment are letting themselves in for a lot of work at this stage," said a systems analyst at a defense agency in Columbus, Ohio, who requested anonymity.

The agency made the transition from 9.x about 18 months ago. "We had to recompile a lot of our application code" to get it to run on HP-UX 10.20 and 11.0, he said.

HP officials said the degree of difficulty will depend largely on the application environment and the kind of customization that has taken place in the user environments.

The vendor stopped shipping 9.x software about three years ago and won't release specific numbers or details on the customers who still use 9.x environments.

But HP officials said that only 5% of its overall server customers — which includes both Windows NT and Unix — still run the old version of its operating systems. □

Review: Microsoft Office 2000

CONTINUED FROM PAGE 45

suite breaks with Microsoft's "my-way-or-no-way" tradition and integrates HTML as a companion, and perhaps competitive, file type to its binary .doc format. That enables the new suite to deliver numerous new features that promise to make it easier to use intranets and extranets for transparent document-sharing, virtual whiteboarding and online meetings.

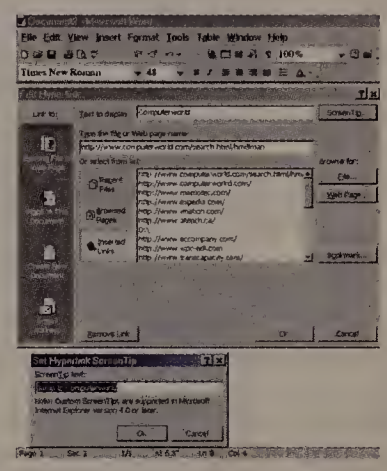
The full suite is scheduled to ship early next year.

FINE PRINT

But what Microsoft giveth, it also taketh away. Office 2000's companion file format is partially compatible with HTML. Although I like the benefits that the hybrid file delivers — it preserves rich-content text, styles and OLE-type automation available in Word's .doc format — it appears that Microsoft ironically compromises the open standard it tries to embrace. That both helps and hinders technical integration.

Nonetheless, all of Office 2000's applications provide increased support for multiple languages, which will help multinational companies improve communications between U.S. and foreign offices, as well as with overseas clients.

For example, the conversion of the Access program to Unicode enables it to support the



Microsoft ironically compromises the open standard it tries to embrace in Office 2000

double-byte character set used in Asian languages, thereby simplifying forms-sharing in multinational organizations.

Office 2000's File/Open and File/Save dialogs now display files and folders mounted on World Wide Web servers just as it displays mapped network drives as a hierarchical view. By eliminating the need to use unfamiliar file transfer protocol or Hypertext Transfer Protocol addresses, Office 2000 simplifies user interaction with files on a Web server. However, to attain that benefit, the server must use Microsoft's free FrontPage Server Extensions.

In my testing, Office 2000 integrated exceptionally well with Microsoft's products and processes. I expected that. But some HTML display and access options will work only with Microsoft's Internet Explorer, not Netscape Communication Corp.'s Communicator.

IMPROVED INFORMATION MANAGEMENT

Office 2000's use of Web-compatible files enables users to search for documents with any standard server-side, Web-based search and indexing tools, such as Compaq Computer Corp.'s AltaVista. I liked that feature because I prefer the ease and extent to which I can customize Web search tools, features that are lacking in Office's Find dialog.

Other new or improved data analysis tools include a new interface for Excel's PivotTables that lets users manipulate PivotTable fields directly from within an Excel worksheet. Previously, that required using a more time-consuming Wizard.

VISUALIZE DATA

A related new feature, PivotCharts, helps users visualize and analyze data. Those two features, once mastered, should prove helpful to business analysts and marketing and sales personnel.

Major changes to Access include native Microsoft SQL Server connectivity, which lets users create or link to SQL Server databases for data exchanges and administering common tasks such as replication and backups. For the first time, users can now post Access' Data Access Pages to display live data forms and reports on the intranet, making them accessible with a browser.

When used to link to back-end data sources, Data Access Pages can minimize the need to build custom interfaces with Visual Basic or C++ development tools.

The power user-oriented tasks, such as designing PivotTables and Data Access Pages, are probably beyond the capability of most Office users and in the realm of the departmental Office guru.

Microsoft added some welcome improvements that make Office easier to use. For example, the clipboard now supports HTML and stores up to 12 sequential cuts rather than just one when cutting or copying. And a drop-down dialog box that adds or removes items from tool bars makes personalization easier.

Information systems-oriented aids include a Profile Wizard that accelerates deployment by creating a variety of individual configurations.

Also, a simple self-repairing process, Installation on Demand, reloads missing or damaged applications automatically from the CD or a server. Those and other features will assist the IT staff when it is time to upgrade. □

Millman operates Data System Service Group LLC, a consultancy in Croton, N.Y. He can be contacted at (914) 271-6883 or hmillman@ibm.net.

Printer refines customer service

CONTINUED FROM PAGE 45

architecture to be component-based. That structure will allow easier application integration in the future.

Jennis said that the quality/customer order integration is well on its way to saving the company much more than the $37,000 he spent to license the suite of tools from New York-based Supernova, Inc. There are substantial, intangible benefits from the integration as well.

"It's difficult to put a dollars-and-cents figure on how frustrated a customer is on the phone," he said.

One application is better than two for a lot of reasons. In addition to letting employees be more responsive to customers, integrating applications can cut down on the hardware, training and hassle of workers needing two log-ons and two machines.

Companies have spent more than a decade converting to client/server environments and developing scores or hundreds of applications and pieces of applications, said Dave Kelly, an analyst at The Hurwitz Group, Inc. in Framingham, Mass. Companies now realize they can derive more value from IT investments by integrating them.

"Five or 10 years ago, there simply wasn't the number of applications out there to integrate," Kelly said. "The base of applications to work from has expanded enormously."

MULTITUDE OF CHOICES

And there isn't a shortage of ways to go about it. Depending on a company's structure, it can use platform-independent, proprietary fourth-generation languages such as Supernova, Compuware Corp.'s Uniface or Forte Software, Inc.'s Forte for component-based development.

Or a company can turn to application integration infrastructures and middleware sold by vendors that include New Era of Networks, Inc., Active Software, Inc., Vitria Technology, Inc., IBM, Sterling Software, Inc. and Crossworlds Software, Inc.

Even middleware-laden single-language development tools such as Inprise Corp.'s Delphi or upcoming enterprise Java tools from IBM or Symantec Corp. claim to provide the glue that can hold together disparate systems.

The market for development tools and integration infrastructure products is expected to skyrocket from $652 million in 1996 to $12.3 billion in 2001, according to a January report from International Data Corp. in Framingham, Mass. The compound annual growth rate during the period is 80.9%.

Jennis used the Supernova tools to lay the groundwork for porting his legacy RMS databases to Oracle. With a modular, component-based architecture, the conversion from one back-end data source to another can occur without any interruption for end users.

"Moving from one database to another easily is one of the strengths of Supernova," Jennis said. □

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Servers & PCs

Large Systems • Workstations • Portable Computing

Briefs

Toshiba notebooks

Toshiba America Information Systems, Inc. in Irvine, Calif., last week added two models to its Satellite series of notebook computers, the 4005 and the 4000. The 4005 is aimed at individuals and small office/home office customers, and the 4000 is targeted at small and midsize businesses, Toshiba said. Both include a 233-MHz Pentium II processor and a 4.1G-byte hard drive. Prices start at $1,999.

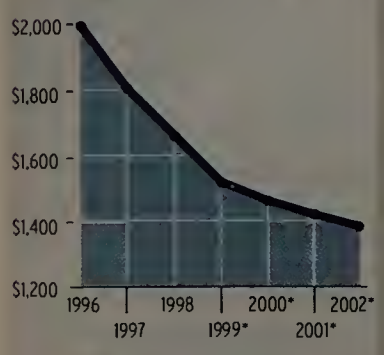
Drive failure protection

IBM has announced a technology called Drive Fitness Test (DFT) that lets users test the health of their PC and notebook hard drives. When incorporated into hard disk drives, the technology will let users run diagnostics on a disk drive in case of failure and identify whether the drive needs to be replaced, according to IBM. The idea is to minimize the cost and loss of data associated with users returning drives, mistakenly thinking they are defective when, in fact, they are not, a company spokesman said.

Cheaper chips

Motorola, Inc. said by next year it expects to implement a new technology for testing chips at wafer level that could lower production costs by as much as 15%. The testing technology will reduce manufacturing costs by allowing chip makers to use a burn-in testing procedure to sort out good chips from bad ones while still on the wafer.

Average price of desktops worldwide



*Projected

Source: International Data Corp., Framingham, Mass.

PRODUCT REVIEW

▸ *Nino 300*

PHILIPS MOBILE COMPUTING GROUP
Campbell, Calif.
www.nino.philips.com

OVERALL B GRADE

Prices: $399.99 for 4M-byte unit; $499.99 for 8M-byte unit.

Pros: Many input methods. Both voice and stylus are fun to use and make it stand out among the Windows CE-based competitors to 3Com's Palm.

Cons: Some unnecessary steps when using voice options; some frustration when setting up the PC components.

REVIEW▸ *Nino 300*

Philips Nino handheld is a standout

By David Essex

3COM CORP.'S PALMPILOT may be the biggest hit in handheld computing since Hewlett-Packard Co. led the pocket calculator revolution in the 1970s. Now other vendors are rushing to cash in on 3Com's success, thanks to a new version of Microsoft Corp.'s Windows CE operating system, which runs on any palm-size device.

I was anxious to get my hands on Philips Mobile Computing Group's Windows CE palm-style entry, the $399.99 Nino 300, because I was im-

Nino, page 50

Users: Windows Terminal Server makes thin-client case

By April Jacobs

USERS OF MICROSOFT Corp.'s Windows Terminal Server (WTS) operating system say the newly shipping product makes a good business case for thin-client computing — saving them administration time and simplifying support.

Thin-client computing, which leaves all major processing and application chores on the server, initially met with open hostility from Microsoft and zero support from PC makers. But increasing user demand and market competition has changed that during the past year.

At Harris Corp. in Melbourne, Fla., which has 30,000 employees and remote locations throughout the world, a combination of WTS and Citrix Systems, Inc.'s MetaFrame software saved the company $280,000 in annual upgrades and streamlined support, as well. MetaFrame is thin-client add-on software that provides multiuser capabilities and support for non-Windows applications.

The decision to try WTS and MetaFrame grew out of the company's move to PeopleSoft, Inc.'s human resources software, said Jeff Baker, lead systems analyst at Harris. The original plan was to use the PeopleSoft package to track personnel and other costs at remote branches.

But remote access proved too slow, and local upgrade, administration and support issues were very expensive, he added. So Harris opted to run all the

Terminal Server, page 50

Windows-based terminals and Windows Terminal Server (WTS) operating system facts:

- Windows-based terminals are designed to run both Windows applications and non-Windows applications through Citrix Systems' MetaFrame add-on coupled with the WTS operating system.
- Windows terminal client devices are available from HP, Wyse Technology, Boundless Technologies and Network Computing Devices.
- The MetaFrame add-on for WTS gives users access to Java applications, Unix and mainframe applications.

EMC focusing more on software

▸ *Plans to continue climb in storage market*

EMC Corp. posted blowout quarterly earnings last month, prompting one market analyst to burble that the disk subsystem maker may soon join Microsoft Corp., Intel Corp. and Cisco Systems, Inc. as a core platform vendor. While that may be a stretch right now — research firm Dataquest pegs EMC's share of the storage market at 27% — the Hopkinton, Mass.-based company has established itself as the front-runner in data-center storage. Now it is expanding into the lower end of the market. Computerworld *Editor Paul Gillin recently spoke with Michael Ruettgers, CEO of EMC.*

CW: What are you doing differently, now that you have dominant market share, compared to when you were a small player?

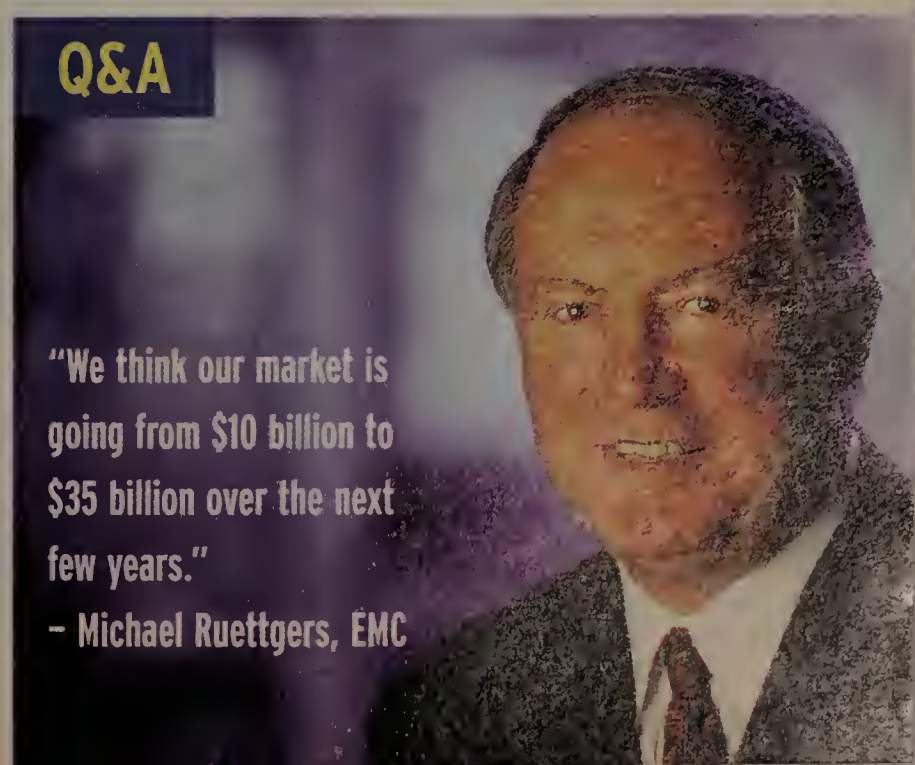
RUETTGERS: We are much more focused on software now. We did $180 million in software last year; we'll do $400 million this year.

CW: You haven't been very acquisitive. Have you thought about branching out beyond storage?

RUETTGERS: We've made selective investments, but I don't see us branching out of this business.

We think our market is going from $10 billion to $35 billion over the next few years. The open systems storage market has shaken things up completely. Without it, our market would have been half of what it's been the last two years. Ninety percent of the customers I've

EMC, page 50



Terminal Server

CONTINUED FROM PAGE 49

applications from central servers in Melbourne, using WTS to improve performance and ease administration.

"I was traveling all over the place, but now that everything is located here, the issues have all virtually disappeared," Harris said.

Microsoft began shipping its WTS operating system in June, and Hewlett-Packard Co. last week announced it will begin shipping Windows-based terminals designed to run WTS. Other thin-client vendors, such as Wyse Technology, Inc., Network Computing Devices, Inc. and Boundless Technologies, Inc., announced support for WTS during the past year, as well.

HP's announcement was no surprise to analysts, who said low margins on simple Windows terminals easily could be offset by increased server sales — particularly if HP tailors its sales in package-deal fashion.

"HP's bread and butter is not on the desktop. It's in the servers and the value-added support and service they can bring to the table with a strategy like this," said Amir Ahari, an analyst at International Data Corp. in Framingham, Mass.

CENTRALIZATION TREND

For corporate users, the WTS operating system and thin clients can "make it easier to control IS budgets," he added. "People are trying more and more to bring applications and operating systems back onto the server. That is part of what we see as a centralization trend that is going on this year."

Back-office-type application users make good candidates for thin clients and applications, analysts said, because their needs are typically limited to a few applications that don't require much customization.

For example, at the University of California at Los Angeles, MetaFrame software gives administrative services workers access to facilities management software used for work orders, employee time and attendance tracking and inventory. End users have PCs, but the applications are run in a thin-client manner, with processing and data kept on servers where the application resides.

The benefit for UCLA is clear, said Jack Tchilingirian, a programmer/analyst at the university. Instead of having to maintain the applications on hundreds of PCs, it requires only maintenance on several servers. □

EMC focusing on software

CONTINUED FROM PAGE 49

talked to this year are doubling their storage this year.

CW: You've got a lot of new competition in enterprise storage: Sun Microsystems, Compaq, Data General and the like. How is competing in this area different from competing in the data center?

RUETTGERS: It's actually a little bit easier. When we got into the mainframe business, we had no presence in the data center; there was IBM and four other major competitors. We had no reputation, little service and a product that was relatively untested. And we got 60% of that market. In the enterprise, we're well-known among the customers. There are lots of competitors, but no one that stands out.

CW: The whole hardware business is under margin pressures. You are in a high-margin business. Do you think that can continue for long?

RUETTGERS: Our margins have actually increased the last couple of years. The PC makers have had to deal with deep discounting to clear out products and selling out channel inventory. We've tried to stay ahead of that. And as we've increased the software content, that's been a higher-margin business. Not that it's free. We'll invest a billion dollars over the next two years, and 80% of it will be spent on software.

CW: How is Fibre Channel going to change the configuration of storage systems?

RUETTGERS: [It] allows you to centralize more of your storage while distributing more of your servers. You can distribute the applications while protecting and sharing your information in a centralized fashion.

CW: A lot of people think Fibre Channel has gotten off to a slow start. Are you satisfied with its progress so far?

RUETTGERS: Fibre is coming faster than we expected a year ago. We shipped over $100 million of Fibre-connected product in the first quarter. We see a huge interest by customers in consolidating [Windows] NT in data centers, and Fibre needs to be employed to do that.

CW: If users are consolidating storage, doesn't network bandwidth become a constraint?

RUETTGERS: Only to the extent that you have to use networks to manage storage. One of the things that Fibre Channel gets you is the ability to manage storage without having to be on a network. Inside and between the systems is the network. Fibre allows you to be much further away from the processor, and it's much faster. Because of that, you can share it with multiple connections.

CW: Storage prices have dropped so quickly. Will this continue?

RUETTGERS: It's more aggressive than Moore's Law. Storage has been running at about a 60% annual price decline compared to 50% for Moore's Law. Some of our first disk drives were 1G byte in size. Today, we ship 47G-byte disk drives in the same form factor. □

NEW PRODUCT

IDOT.COM, INC. has announced the 300LXC, a small-business computer with Windows 98 and an Intel Corp. 300-MHz Celeron processor.

According to the Austin, Texas, company, the system features 32M bytes of memory, a 4.3G-byte hard drive and an 8M-byte graphics card. Its midtower configuration also includes a 56K bit/sec. modem, a 36-speed CD-ROM, four Peripheral Component Interconnect (PCI) slots, one Industry Standard Architecture (ISA) slot and one shared PCI/ISA slot.

The 300LXC costs $1,199.

Idot.com
(512) 684-5000
www.idot.com

Nino is a standout

CONTINUED FROM PAGE 49

pressed with the company's sleek, solidly designed Velo series for the keyboard version of Windows CE. I found most of the first-generation Windows CE palm PCs, except for Casio, Inc.'s Cassiopeia, flimsy and hard to read. But the Nino sets itself apart with classy styling and feature-richness.

HANDHELD REVIEW

Palm-size computers essentially are electronic note takers. They're best used for entering, storing and transmitting short items, such as contacts, calendar items and reminder notes. They don't have real keyboards, and they can't run standard Windows programs.

Product differentiation is hard to achieve because most of the communication and user-input functions are handled by the operating system.

The Nino comes with standard Windows CE offerings such as Notetaker, for capturing notes and drawings; Jot, a handwriting recognizer that insists on some specially formed characters, but fewer than does Palm's Graffiti from 3Com; and a "soft" keyboard displayed at the bottom of the screen.

But the Nino stands out with the addition of a second handwriting recognition program, an easier-to-use soft keyboard and speech recognition for certain commands.

FAVORITE FEATURE

My favorite of those features is Tegic Communications, Inc.'s T9, a soft keyboard that groups three or four characters at a time on keys that are larger and easier to activate than those on standard Windows CE devices.

Picture a grid that starts with the punctuation keys in the upper left, leading into "abc" as the first letter key. T9 plays the percentages by combining the three letters from each pressed key into likely word combinations. By the time you reach the fourth or fifth letter, T9 has usually picked the right word as its favorite or has displayed it as an alternative. Tap once on the word, and T9 puts it in the text-entry area of the application you're in.

You also can "press" the right letter of the three on each key to spell out proper names after hitting a "mode" key.

The Nino also offers voice-based command control (as does Cassiopeia). The Nino's is handled by Advanced Recognition Technologies, Inc.'s Pocket Commander, which requires a 10-minute training session during which you recite command words such as "Go to" and "Solitaire" into the Nino's recessed microphone.

Unfortunately, Pocket Commander inefficiently requires you to press its on-screen icon or one of Nino's side buttons to activate it and say each word into a separate pop-up screen. I'd like to see Pocket Commander always running in the background and the pop-up screens cut back.

One other area of frustration appeared during PC setup; some of the Windows CE utilities were confusing and had inadequate documentation.

MODERATE VISIBILITY

The Nino's 320- by 240-pixel, gray-scale screen is in the midrange in terms of readability — comparable to the Palm's Graffiti screen but not nearly as bright as Casio's almost paper-white screen. I often had to move closer to make out details, especially the too-small icons for many of the Windows CE applications.

You can turn on the bluish-green backlight, but at the cost of battery life. Philips claims eight hours of battery life based on a combination of applications and features under normal use.

The PalmPilot's biggest breakthrough is its no-brainer synchronization with desktop PCs. ActiveSync is Windows CE's utility for this purpose. It started up unfailingly whenever I placed the Nino in its included docking cradle, tethered to the serial port of my PC.

Philips also touts the Nino's "built-in" 19.2K bit/sec. modem, but you must get the $499.99 model or pay $89.99 to get the required attachment (which was not available for testing) for the base model. Other palm units have similar modem setups.

However the larger battle among Palm and the Windows CE devices turns out, I expect Nino's superior input options and attractive design will place it among the leaders. □

Essex, formerly director of reviews at Byte *magazine, is a freelance writer in Antrim, N.H. His Internet address is david_essex@conknet.com.*

SPECIAL REPORT CUSTOMER RELATIONS

Critical contact

If you've ever zipped through bank transfers or loan payments at your PC, sparing yourself a trip to an automated teller machine, you know technology-driven customer service at its best. And if you've ever found yourself four menus deep in a voice-mail labyrinth — with no answer to your question and no apparent way out save hanging up — you know technology-driven customer service at its worst.

Well, so do your customers. With information technology now a vital factor in attracting and retaining business, the information systems department finds itself thrust into yet another critical — and visible — role.

We look at companies that are doing it right; companies that aren't; how you can make sure you're in the former group; some surprising career opportunities in this booming field; and some hot new products and trends.

"If you would like to press one, press one. If you would like to press two, press two. If you would like to press the pound key, press the pound key . . . "

INSIDE

52 THE GOOD NEWS: Thanks to IT, Wachovia, Peapod, Schwab and Plymouth Rock Assurance are finding new ways to forge strong customer relationships.

53 THE BAD NEWS: Thanks to IT, customers stew forever in voice-mail limbo. And that's just one example. IT without a clear purpose won't get you anywhere.

56 COLUMNIST PETER G. W. KEEN points out that the future is in your customers' hands — literally, in many cases. To understand where IS must go, study the Sony Discman.

Following page 56 MORE GOOD NEWS: If you understand your customers, as one expert says, "your IT career is going to be wonderful." If you want to create business impact, this is the field to be in.

EXTRAS

Customer relationship management: What's going on

Customer relationship management is all about using existing customer information to your company's advantage. Vendors also will tell you that it's about saving time and easing frustration for customers by not having them repeat information to various departments, for example. Like knowledge management and other emerging areas, there are quite a few buzzwords in customer relationship management. Enterprise relationship management, customer asset management, marketing automation and Technology Enabled Relationship Management (TERM), coined by Gartner Group, Inc., are a few of the terms you'll come across.

BUZZ WORDS

Analysts are pretty much in agreement with what that emerging area is all about. "Customer relationship management is a combination of business process and technology that seeks to understand a company's customers from a perspective of who they are, what they do, what they like — all those things," says Mitch Kramer, a senior consultant at the Patricia Seybold Group in Boston. Then the company can use that profiling and demographics information to understand customers' behavior to help ensure that they remain customers, he adds.

Gartner research analyst Michael Maoz describes customer relationship management, or TERM, more as a framework or an approach rather than a product. Today, he notes, vendors are trying hard to put that framework into the form of suites. "The idea was to give an integrated application suite that could take disparate organizations that were formerly islands of information," Maoz says.

SERVICE

THE Good News

Thanks to IT, Wachovia, Peapod, Charles Schwab and Plymouth Rock Assurance are finding new ways to forge strong relationships with consumers

By Alice LaPlante

STELLA JOHNSON

Charles Schwab's Mary Kelley says when employees have access to customer data, it dispels myths about the customer, which improves personal service

After 14 years at Wachovia Bank, David Pope knows how to cultivate a loyal, profitable customer base. But the sales executive is amazed by what technology has accomplished since 1996.

That's when parent firm Wachovia Corp., based in Atlanta and Winston-Salem, N.C., began an initiative to help its bankers relate to their customers. "The new technologies we're implementing change everything. . . . [It's] a simply huge difference in the way we work," says Pope, who runs Wachovia's consumer and small-business sales and service activities.

Each morning when they log on, loan officers, account representatives and telemarketers — any bank employee who deals directly with the public — find a list of customers to contact and reasons why: to offer a mortgage refinancing deal, to see if a customer's daughter needs a car loan now that she's graduated from college or to offer a newlywed help with changing checking account options.

Before installing the Profitable Relationship Optimization (PRO) system, which analyzes customer needs, branch managers such as Mike Keith, now an assistant vice president at Wachovia, spent 65% to 75% of their time reacting to customer requests and questions. Keith now spends 90% of his time reaching out to specific customers. Keith receives 60 leads a week and takes responsibility for their overall relationship with the bank's Chapel Hill, N.C., branch. He calls them at least three times a year to make sure they're satisfied with Wachovia's service and to offer new products to them. Naturally, he makes more calls to follow up requests. "The response has been terrific," Keith says.

Leslie Hayes, a senior vice president at Wachovia, says, "We are seeing significant increases in customer retention," though she declined to share the precise results. "This has been an enormous success in terms of customer loyalty."

PRO is an IBM DB2 relational database that feeds Windows NT client machines, using customer-management software from Denver-based Prime Re-

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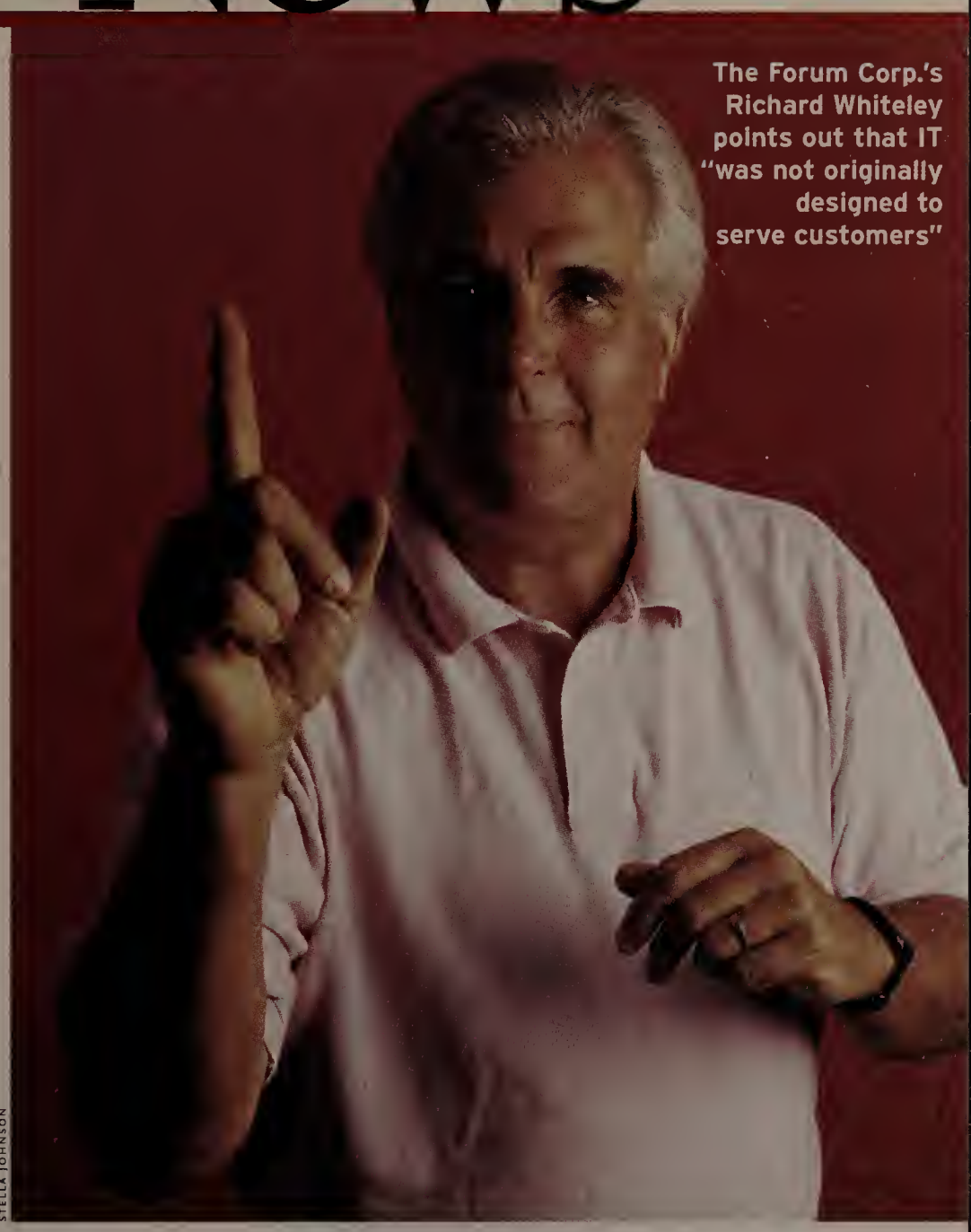
Thanks to IT, customers stew forever in voice-mail limbo. Technology with no clear purpose won't get you anywhere

THE Bad News



The Forum Corp.'s Richard Whiteley points out that IT "was not originally designed to serve customers"

STELLA JOHNSON

By Gary H. Anthes

David Reibstein is not happy. A nonsmoker, he has just flown first-class from Europe to the U.S. seated across the aisle from a chain smoker. "He really ruined my flight," Reibstein says of the polluting passenger.

It gets worse. "In my anger at having had this horrible experience at a very high price, I called the airline," says Reibstein, a marketing professor at the Wharton School in Philadelphia. "It gave me a list of nine things to choose from, followed by another list of seven choices, which gave me another set of choices. I went through four layers, and at the end of the fourth layer, it got me right back to the first one. I was angry when I first called — but I was livid at the end."

Reibstein's frustration might be dismissed as an acceptable price to pay for the efficiency of automation. But information technology sometimes fails catastrophically, repelling customers en masse. For example:

► Systems problems plagued Wells Fargo & Co. in the wake of its hostile takeover of First Interstate Bank in 1996. Deposits were posted to the wrong accounts, checks took weeks to clear, and an automated telephone banking system went dark for several days. The bank's deposits, earnings and stock price cratered.

► Oxford Health Plans, Inc. lost $363 million in the second half of last year when a new system delayed claims processing and client billing.

► Snap-On, Inc. recently reported that bugs in a new order-entry system cost the company $50 million in sales because the tool maker couldn't meet dealers' delivery demands.

Although devastating, such highly publicized snafus are rare. More commonly, poorly conceived or implemented systems quietly erode the bottom line by frustrating buyers with buggy or unfriendly customer interfaces. And management is often unaware of the corrosive effects the systems have on customer satisfaction.

"Information technology was not originally designed to serve customers," says Richard Whiteley, vice chairman of The Forum Corp., a Boston customer service consultancy. "It was designed to make accounting more efficient."

Reibstein says firms should better recognize that automation — which is adept at improving efficiency and lowering costs — is less likely to improve customer service. If quality of customer service is the primary objective, companies might be better advised to add more human operators and train them better. "Everyone seems to be rushing to the IT solution," he says.

CLASS ACT

Whiteley says business and IT managers should recognize the needs of two classes of customers: those who want only information and those who seek help through a personal relation-

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EXTRAS

Spectrum of products

Customer relationship management products range from front-end suites to data warehousing tools. Mitch Kramer, senior consultant at Patricia Seybold Group in Boston, agrees that the front-end suites capture everything about a customer interaction, but he thinks that the products that are most important are in the areas of data warehousing, data marts and data mining.

"By collecting all the information from the various operational systems that have anything to do with customers and putting it in one place, you can then run applications or run analyses against that data," Kramer says. "Now you get into technologies such as data mining. You can do predictive modeling."

According to Kramer, the leading customer relationship management data warehouse vendors are also the leading database vendors: Oracle Corp., Microsoft Corp. and Informix Corp. "There are a couple of specialized vendors — one being Red Brick Systems, the other NCR," he says.

A lot of companies offer other technologies that sit on top of data warehouses. Kramer names companies such as Valex, Prime Response, Paragren and Data-Mind Corp. as examples.

But analysts see the most activity in the front-end suites arena, which includes systems that take information when a customer calls, then filter that information into various departmental modules.

Gartner Group, Inc. analyst Michael Maoz says leaders in this sector include Clarify Corp., Onyx Software Corp., Pivotal Software, Inc., Siebel Systems, Inc., Siebel business unit Scopus Technology, Inc., Vantive Corp. and Aurum Software, Inc., which is a unit of The Baan Co. (Visit *Computerworld online* for contact and revenue information.)

EXTRAS

Buyer's checklist

To choose a front-end suite, Gartner Group offers the following user evaluation checklist:

① Rich and integrated functionality across field sales, telesales, telemarketing, marketing, customer service and support, extended selling and servicing channels. Also, customer self-service and technology-enabled buying with no salesperson involved.

② Strong integration with back-office systems

③ Active workflow

④ Knowledge bases/expert technology

⑤ Advanced tools for data import/export, cleansing, segmenting, analysis and reporting

⑥ Integrated telecommunications and Web technologies

⑦ Multiple reference sites using the vendor's "suite" across all areas

MOREONLINE

Visit Computerworld online for customer relationship checklists and vendor contact information.
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Quotables

"The railroads . . . let others take customers away from them because they assumed themselves to be in the railroad business rather than the transportation business. The reason they defined their industry wrong was because they were . . . product-oriented instead of customer-oriented."

— From "Marketing Myopia," Theodore Levitt, *Harvard Business Review*, July/August 1960; September/October 1975

THE Good News

CONTINUED FROM PAGE 52

sponse, Inc. to deliver internal customer data and data purchased from outside sources.

Wachovia shows how late-1990s-style, information technology-enabled customer relationship management works. Sure, quick, courteous responses are still important; call centers track complaints and how long they keep customers on hold. But IT has taken customer service to new levels. Today's innovators use technology to find, develop and retain customers. Some, such as Wachovia, match individual customers' changing needs to products. Others generate loyalty by making their customers' lives easier. Still others test customer reaction to promotions.

PEAPOD'S CUSTOMER-TRACKING SYSTEM

Peapod, Inc. made waves in the early '90s as the "order-your-groceries-online" company. Now that new competitors have arrived, the Skokie, Ill.-based firm is working to strengthen customer relationships to keep its early market lead [CW, July 27].

Customers dial in to the Peapod server, click on the items they want and have their orders delivered. Peapod tracks what each customer purchases, which brands they prefer, how often they shop and whether they respond to promotions. That lets Peapod tailor online ads to specific customers. People who buy diapers and formula see ads different from those who buy beer and Doritos.

Today's innovators use technology to find, develop and retain customers.

That's the old news. More recently, Peapod has developed a way to track *how* individuals respond to particular promotions, not just *if* they respond. Its "Universal Event Processor" (UEP) not only knows that you buy diapers, but it also knows that you immediately used a two-for-one electronic coupon for raisin bagels even though you'd never purchased bagels before, or that you ignore ads for cheese unless you're buying wine. "It's routine to search databases for people who conform to a specific profile. We wanted to create a system that automatically tracked the actual transactions that resulted," says Thomas Parkinson, Peapod's chief technology officer.

"We found, for example, that we could sell five times as much Keri hand lotion by running a banner ad whenever a customer clicked on bananas," Parkinson says. Illogical? Perhaps, but it's the kind of information market researchers crave. "This tells us what consumers actually do, individual by individual," Parkinson says.

Peapod executives say it's too early to tell whether this has made individual consumers more loyal to Peapod. But it is helping Peapod sell more goods, and the UEP has led data-hungry consumer goods manufacturers to Peapod's door.

Kraft Foods, Inc., Bristol-Myers Squibb Co. and Kellogg Co. use Peapod to test consumer tastes and behavior. They've seen on average a 10% to 15% increase in sales when they run a targeted banner ad — twice that with targeted electronic coupons, says Tim Dorgan, an executive vice president at Peapod, who oversees market research for consumer goods companies.

SCHWAB INSTALLS A MYTH BUSTER

Good data about customers can do more than cause an uptick in sales. It also can expose myths about customers.

"We have these assumptions — particularly if we don't see the actual data very frequently — that can get in the way of serving your customers," says Mary Kelley, vice president of database and relationship marketing at The Charles Schwab Corp. in San Francisco. But when the data is accessible, employees can draw their own conclusions, and the myths go away, she says.

In June, Schwab put in place relationship-management software from Epiphany, a 16-month-old Palo Alto, Calif., company. Nontechnical employees can answer questions such as, Who opened an individual retirement account last year but didn't fund it? and How many customers also trade independently over the World Wide Web?

The system already has dispelled two myths. "We thought there were very few Web traders out there, and we were wrong," Kelley says of one recent query. Schwab also assumed a class of customers with lower net worth had little further business potential. Yet by layering external data on top of Schwab's own internal customer data, "we realized that in many cases, we didn't have a very high share of these customers' wallets. By customizing services, we could convince them to consolidate assets at Schwab," she says.

What should be made of these results? It's a little too early to know, says Gary Korotzer, who, as Schwab's vice president of loyalty marketing, is responsible for creating programs to retain "high-worth" customers. "But I just gave a presentation to our senior executives, and the information I pulled from the system in three minutes previously would have taken a week for our data specialists to retrieve," he says.

PLYMOUTH ROCK MAKES THINGS EASY

Technology is also helping another aspect of customer loyalty: Making it easier for people to do business with you.

That's why Eileen Nissi, who represents many insurers as general manager of Columbia Insurance Agency, Inc. in Lynn, Mass., often places Plymouth Rock Assurance Corp. in Boston at the top of her list. For example, Plymouth offered Nissi a free way to dial in to its mainframes to access billing, coverage and other records and to make changes directly in the Plymouth Rock system. All other things being equal, "we tend to book our business with whatever carrier is easiest to deal with," Nissi says. "Other carriers are beginning to understand this, but Plymouth is ahead of the pack."

Myron Karasik wants to make sure it stays that way. As vice president of IT at Plymouth Rock, he's rolling out customer-relationship management software from Broadbase Information Systems, Inc. in Menlo Park, Calif. It's a relational database management system that has online analytical processing, data cleansing, administrative processing and query tools in an integrated suite. This will let independent brokers such as Nissi do demographic analyses and score current and potential customers on their potential for losses. The system includes data on "who has cost us and why," says Karasik, who supplements that with data purchased from the Massachusetts Registry of Motor Vehicles and other sources.

"From all this, we can determine what kind of customer you are and how much effort we want to go through to reach or retain you," Karasik says. Nissi, who took part in an early trial of the system, says, "This precise approach to telemarketing will eliminate a lot of paperwork and redundancy on our end."□

LaPlante is a freelance writer in Woodside, Calif.

THE Bad News

CONTINUED FROM PAGE 53

ship. Information seekers may be safely routed into a system of menus and automated voice response, but relationship seekers should be sent immediately to a knowledgeable human operator.

According to Whiteley, British Airways PLC put in a system at airport gates several years ago in which the screen was mounted horizontally, low on a desktop. Ticket agents looked down when checking in passengers; as a result, passengers saw only the top of the agent's head. "They did this deliberately so there would be less eye contact, less schmoozing and the lines would be shorter," Whiteley says.

Bad idea. Fliers are naturally anxious and often need a little schmoozing. Passengers complained; the airline moved the screens to eye level.

'BARNACLES'

Fred Reichheld, a director at Bain and Co. in Boston, advises companies to separate customers into groups of "barnacles," who are fiercely loyal and tend to be big spenders over time, and "butterflies," who flit from supplier to supplier at the slightest whim.

"Most information systems, and the processes built around them, don't distinguish between the barnacles and the butterflies," Reichheld says. As a result, companies invest precious resources in customers who are unlikely to remain faithful no matter what — while the most loyal and highest-spending customers are neglected or even punished.

Reichheld says companies should analyze customers and prospects — their buying histories, attitudes, demographics — for indicators of barnaclelike behavior, then reward them with superior service. Such analysis is no more complex than a typical manufacturer's cost accounting system, he says.

Defining an elite caste of customers is controversial, especially among those assigned to the proletarian class, but the practice is catching on, thanks to enabling technology. For example, several airlines now give the best seats not to passengers who book earliest, but to those paying the highest fares and those who spend the most with the airlines over time. Gate agents can perform triage on competing passengers by tapping into travelers' mileage and fare histories.

It's a common mistake to go after technology for technology's sake, sometimes only because a competitor has it. Harry M. Levy, executive vice president at The Men's Wearhouse in Houston, says colleagues sometimes call him a crow because "I'm attracted to shiny objects." But he examines the shiny objects carefully and "only nabs the ones that make sense," he says.

For example, the 400-store retail chain recently considered — but rejected — technology that would digitize and store customers' signatures. Explains Levy: "So Mr. Jones, who has been buying from us for some years, comes in and makes a $2,000 purchase. And the manager says, 'That's OK, Mr. Jones — we have your signature on file.' I think that would scare Mr. Jones to death."

IT misfires when it fails to faithfully mirror a company's customer service strategy, or when the company has no such strategy, says Michael Hepworth, president of Hepworth Co. in Toronto. Applications such as voice mail are fine if accompanied by standards: for example, how quickly calls are to be returned, he says.

"Resolution on first contact is very critical to customer loyalty and satisfaction," Hepworth says. "One call should do it all." His firm's research shows every transfer of a customer inside a firm, and every call for the same problem, results in a 10% drop in satisfaction.

And transactions must be simple, Hepworth adds. If users hear more than three menu choices at a time, they can't remember them all.

Hepworth cites a large insurance firm that installed an automatic call distributor (a computer that routes phone calls). "They thought they had a call center, but a call center is much more," he says. "Callers got a live person, but not necessarily one who could resolve their problem."

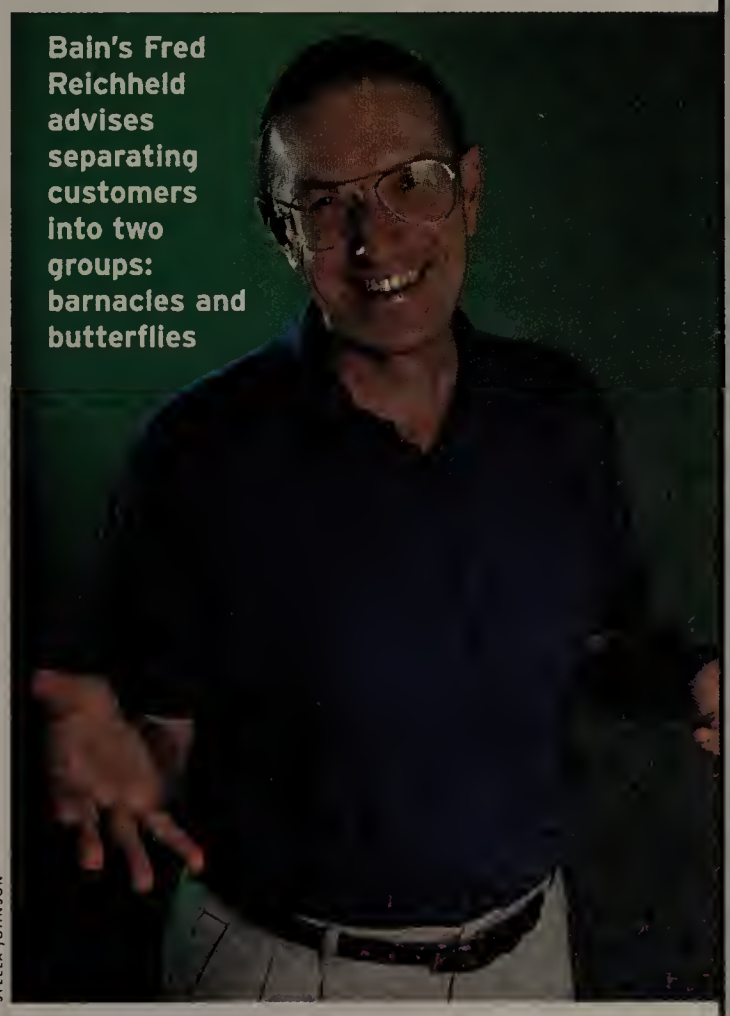
The person who masterminded the system lost his job, and the company lost 18 months' effort and $1 million.

The insurance company's call distributor performed only the first of the following four key tasks, Hepworth says:

- ▶ Provide quick access to people and information.
- ▶ Promptly resolve problems.
- ▶ Recovery: Once a problem is solved, how can the company make it up to the customer?
- ▶ Memory: Track and analyze who calls, why, and the calls' outcomes.

Customers increasingly are being forced to accept electronic interfaces that amount to outsourcing of corporate functions, Hepworth says. For example, voice mail transfers secretarial responsibilities to the caller, while an automated teller machine outsources a bank teller's duties to the user.

Many companies outsource these functions without thinking through how customers will perform the work, Hepworth says. He urges companies to establish pilots in which a few customers become part of a test team.



Bain's Fred Reichheld advises separating customers into two groups: barnacles and butterflies

STELLA JOHNSON

The design of customer interfaces should be driven by customers, not systems people, Whiteley agrees. "If you leave it to the gearheads, they may build a system to impress each other," he says. "The technology is available to serve us well. The problem is, we don't take the customer's point of view, we don't beta-test, and we don't even try these systems ourselves." □

Anthes is Computerworld*'s editor at large. His Internet address is gary_anthes @cw.com.*

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PETER G. W. KEEN

THE FUTURE IS IN OUR CUSTOMERS' HANDS – LITERALLY

The cell phone, Sony Discman, camera and television represent the future of IS.

Not because of their size, price, neat features or primary functions, but because they will be — well within five years — the primary interfaces between the customer and information services.

Consumer electronics and business computing will converge because:

1) People hold those devices in their hand and use them where and when they want.

2) They are, or soon will be, IP devices that will rely on digital technology, much of which will be wireless.

3) They are as easy to use as an automated teller machine.

4) They allow IS to begin solving the basic problem of its enterprise information technology platforms: that distributed computing is the antithesis of customer-natural computing.

It's the last reason that counts most. Fundamentally, corporate computing has been driven from the center of the company out. Our legacy infrastructures begin in the data center, are pushed out across the corporate geography and from there go to key suppliers and then out to the customer. The phrase "distributed computing" captures the history.

The customer is at the end of the infrastructure chain. This corporate technology isn't natural in the way that using a phone or fax machine is.

Consider the Nokia 9000I. It's a combination digital cell phone, fax machine and a full (but slow) Web browser. In other words, it's a natural-to-use laptop. Add missing bandwidth — which is why it's currently so slow — and it's a full-service communications and information tool that amounts to a mobile office.

The browser is rapidly moving toward being the equivalent of an ATM: a basic customer interface. And like the ATM, it will be everywhere. Most important, it's the first general-purpose IT interface we've ever had that doesn't require training. Nor does any consumer electronic device require complex installation. The infrastructure is just there and taken for granted, as is the electrical network.

Just imagine how IS would have exploited the opportunities of reengineering, groupware and intranets earlier this decade if we had fully mobile tools that were lightweight, already familiar to ordinary folks and required no installation or complex support. Have you ever heard of a Discman or cell phone help desk in a company? How different the road warriors' world would be if we had the next generation of Nokia 9000s or PalmPilots in our hands?

Heidegger, the philosopher known for impenetrable prose, coined the phrase "tools at hand." He did so to capture how, in our everyday life, we work with tools that are natural to us. When you use a hammer or ride a bicycle, you don't think about how you know how to use it. PCs are rarely tools at hand in this sense, and simply calling them user-friendly doesn't make them so. You're always aware that this is "technology."

What are, and will be, the IS customer's tools at hand? I listed four archetypes as examples. I selected the Discman because it's becoming clear that Sony Corp.'s overall strategy is that its tools at hand for its customers will use IP to access entertainment, personal and community interactions, and electronic commerce.

Sony has stacked up patents in data compression and IP-related and wireless technologies during the past few years, and its SonyNet is the principal rival to America Online in Japan. Nokia's talking about the mobile office. Sybase is positioning for "Occasionally Connected Computing," making it easy to connect away from your desk.

Silicon Valley is showing 1- to 2-in. displays with the resolution of a 17-in. monitor; those aren't intended for desktops. I've seen a 1-in. camera prototype that will attach to, or be part of, any of the wireless tools at hand. And, of course, WebTV is already an IP device that's a television.

The issue for IS isn't the specifics of such devices, but the wonderful opportunity to start from the customer tools at hand and work back from there. So how about spreading your own and your kids' personal electronic bits and pieces out on the table and asking, "If we add IP to these, what could we offer in terms of customer service, business process innovation, information access, service and product support, groupware, electronic commerce and intranets?" □

Keen's book The Business Internet and Intranets *was published in February by Harvard Business School Press. His Internet address is peter@peterkeen.com.*

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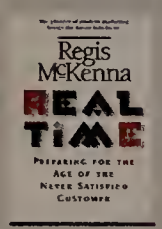


The Service Profit Chain: How Leading Companies Link Profit and Growth to Loyalty, Satisfaction, and Value
James L. Heskett, W. Earl Sasser and Leonard A. Schlesinger
$30
The Free Press, 1997
(212) 702-3130

301 Great Customer Services Ideas: From America's Most Innovative Small Companies
Nancy Artez, Harvey MacKay
$14.95
Inc. Publishing, 1998
(800) 468-0800, Ext. 5524

CAREER OPPORTUNITIES

Getting oh

By Miryam Williamson

The year was 1984. "Point of sale" had yet to become part of the retailer's vocabulary. A 26-year-old systems analyst named Adam Hartung was assigned to upgrade an error-prone cash register system for a major fast-food restaurant chain. The problem: The company's accounting department was having trouble reconciling cash deposits in banks all across the country.

"Before we began working on the system, I said, 'Let's go look at the problem.' So we went to a restaurant," recalls Hartung, who today heads the electronic-commerce practice at CSC Index in Chicago.

At the restaurant, Hartung watched order-takers key in incorrect prices for items that customers had ordered. And, no surprise here, he noted how it irked customers to be charged incorrectly.

Soon after, Hartung and his development team came up with a novel idea: Put the names of menu items, rather than numbers, on the cash register keys, and send the orders directly to a display in the kitchen to avoid misunderstandings between counter help and cooks.

Thus was born one of the world's first point-of-sale systems. And, presto, the accounting department's problems were solved.

Looking beneath the surface of the problem to find a customer-oriented solution taught Hartung an important lesson: Technical competence is only one ingredient in the success of an information technology professional. Even more important is the ability to apply that skill for the good of the company and its customers, as Hartung and his development team did.

And as a financial and career move, getting close to the customers is about as smart as you can get.

More recently, as director of strategy for one of the nation's largest manufacturing companies, Hartung put that lesson to good use. A customer had asked the manufacturer to install an electronic data interchange system. When Hartung paid a visit, he discovered that the customer's needs could be better met with a less expensive World Wide Web-based application. Once again, by looking at the problem underlying the customer's request, Hartung saved both his company and the customer a bundle of money.

"IT's ultimate job is to create value for the business," says Fred Wiersema, a business strategist in the Boston area and author of *Customer Intimacy* (Knowledge Exchange, 1996). "If you're in an IT function that creates business impact, your career is going to be wonderful. If not, you won't go anywhere."

LOVE AT FIRST SIGHT

Not long ago, Kent Tapper, chief information officer at 3-year-old Patient Infosystems in Rochester, N.Y., sent a developer to a customer's site to iron out a problem. Patient Infosystems, which serves pharmaceutical companies and managed care organizations, uses call-center technology to interact with its customers' patients, feeding information back to the corporate customers.

The customer wanted Patient Infosystems to monitor compliance with prescribed treatment in a group of chronically ill people. To do so, Patient Infosystems needed information from the customer's database. But the customer's IT department was unresponsive to requests for assistance. With-

Get up close and personal

To understand a company's customers, the technical professional must first understand the company's business. Beyond the company's products and services lie questions of who uses them, how they use them, whom the company competes with and why a customer chooses one company over others.

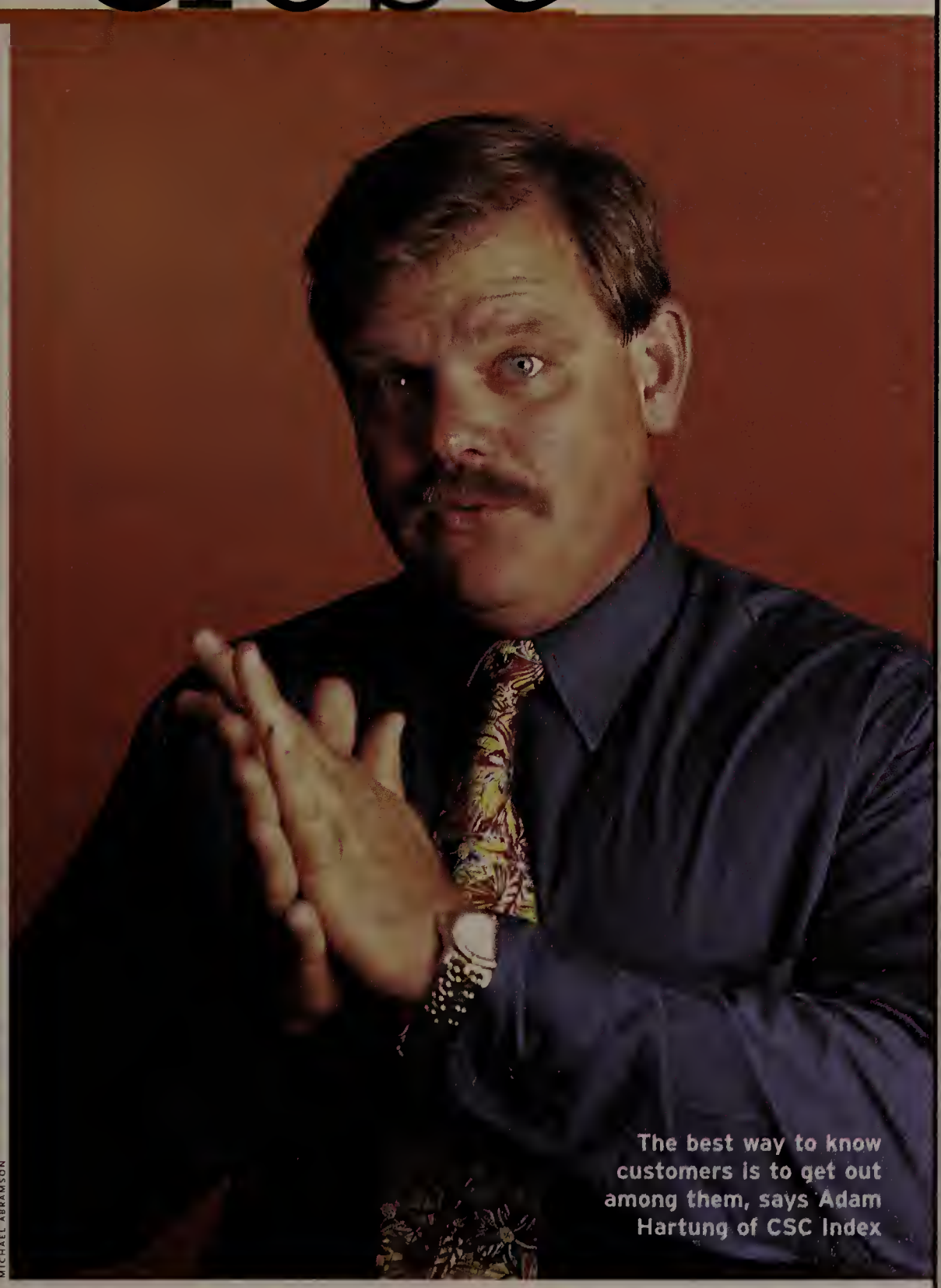
Any IT pro with ambition should be able to name his or her employer's major customers or top market segments, advises Adam Hartung, an analyst at CSC Index. Here are some ways to gather that knowledge:

- **Glean information from published articles, annual reports and marketing materials.**
- **Learn through informal conversations with people on the business side. Ask about the challenges and opportunities that their work provides.**
- **Work with internal customers, says author Fred Wiersema. "Ask what impact the project will have on the success of the business," he says.**
- **Read trade journals, both in the industry in which you work and in those of your employer's top customers. Industry knowledge lets the IT pro talk with marketing and salespeople. Knowing the ins and outs of industry conditions also makes it easier to approach customers on their own terms, experts agree.**
- **Shy folks, take heart. Skill at customer relations isn't a question of personality. Instead, it's a matter of priorities and focus, Hartung says. Anyone who wants to grow professionally can learn to listen to the marketplace.**

— Miryam Williamson

Want to really rev up your IT career? Forget the boss; snuggle up to your customers

so close



The best way to know customers is to get out among them, says Adam Hartung of CSC Index

MICHAEL ABRAMSON

out patient data, the customer couldn't get the compliance data it needed, and Patient Infosystems couldn't get paid for gathering that information.

The situation was a touchy one. "Generally, this customer won't let anyone [from outside] in the door," Tapper says. He asked Patient Infosystems' systems development manager, Bob Knopf, to see what he could do.

"At that point, they were desperate enough to let him in. [The customer] fell in love with Bob, and he's been down there four or five times since then," Tapper says. With the compliance monitoring project under way, both customer and vendor are now getting what they want.

Knopf says he acquired his ability to talk with customers in his first career as an industrial engineer. Industrial engineers look for ways to improve the manufacturing process, he explains. That requires constant interaction with shop floor workers, whose vocabulary is not a technical one.

Knopf honed his skill at translating technical jargon into business language. "You make more money when you talk to the customer," he points out. Tapper says customer-relations skills are crucial for anyone with aspirations to upper management. "The options of a person who can bridge the technical and business worlds are doubled," he says.

Those who relate to customers best listen well and speak clearly and are detail-oriented and well-organized, Tapper says.

"There has to be a certain level of compassion," says Dean Van Daalwyk, manager of IT field systems at Snap-on, Inc., a toolmaker in Kenosha, Wis. Van Daalwyk oversaw the creation of a sales force automation system for Snap-on's sales force of more than 3,600 people, most of whom are franchised independent dealers.

Now in his 29th year at Snap-on, Van Daalwyk had been in data processing for 14 years when he was assigned to develop the system. He says he knew Snap-on's business well but didn't know what the franchise owners needed.

"The best way to learn was to pretend I was a dealer," he says. He rode in dealers' vans and talked with them and their customers for more than four months. "I went out and learned how they did their business," he says. "I helped sell the tools, too, and did whatever I could to help them." □

Williamson is a freelance writer in Warwick, Mass.

EXTRAS

Quotables

"Right now, everybody is trying to sprinkle a little fairy dust on the customer service issue and hope things get better.

"Most companies that are growing and paying their people well understand the customer relationship. But since most companies aren't growing well these days, most don't. How often does a CEO run down the hall to the CFO and say, 'Gee, we have to work on our customers' issues?' Companies don't manage customers strategically."

— Frederick F. Reichheld, director, Bain & Co., and author of *The Loyalty Effect*, HBS Press, 1996; from an interview in *Management Science*, March 1997

"Relationship marketing is not synonymous with junk mail or telemarketing. Neither does it involve over-surveying of customers, product line extensions or purchasing new customers with rebates and special deals. Instead, these are the classic symptoms of a traditional marketing discipline on speed. . . . This is what happens when addressable, interactive media and high-capacity customer databases are used for traditional, product-oriented marketing, with no attention paid to the different, customer-oriented business model represented by genuine, one-to-one relationship marketing."

— "The Truth about Faux Relationship Marketing," by Don Peppers and Martha Rogers, "Inside1to1" newsletter, *www.1to1.com/articles/i1-1-15-98.html*

sap (sap) *n.* 1. The liquid that circulates through plant, carrying food substances. 2. Vigor: energy. 3. *Slang.* A gullible person; dupe.

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SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Visual C++, MFC, SQL Server and OLE. Requirements: Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge Visual C++, MFC, SQL Server and OLE. Salary $57,000/year. Working Conditions. 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: Mr. Tom Dembosky, Indiana Job Center, 350 N. Fourth Street Indiana, PA 15701, Job No. 1019608.

Programmer/Analyst (Client sites in Orlando, FL) Analyze, design, develop, code, test, implement, and maintain programs for commercial and financial applications systems using RPG/400 in an IBM AS/400 environment. Bachelor's Degree in Comp. Sci., Engin., or Math, + 2 yrs. exp. req. $37,500/yr; 40 hr/wk; 8:30 a.m. - 5 p.m. Send resume to: Bureau of Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, Re: JO# FL-1834533.

Software engineer with two years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with two years of experience using OLE, MFC, ODBC, and Visual J++. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer science or physics. $70,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 908S633, to: Mr. Tom Rusnack, Manager, Charleroi Job Center, 10 Paluso Dr., PO Box 210, Charleroi, PA 15022.

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Techno-MBA programs – how to find them on the 'net

BY LESLIE GOFF

Everyone must want an MBA these days, judging by how many online guides the Internet is hosting. Unfortunately, most of them leave much to be desired: Descriptions of the schools are scanty or nonexistent, search engines are cumbersome to use and frequently fail to turn up information systems-related MBAs, and career information is written for starry-eyed undergrads.

The listings on one site read as if they were written by the school's public affairs officers: "The faculty is vigorously engaged in teaching." We would hope so.

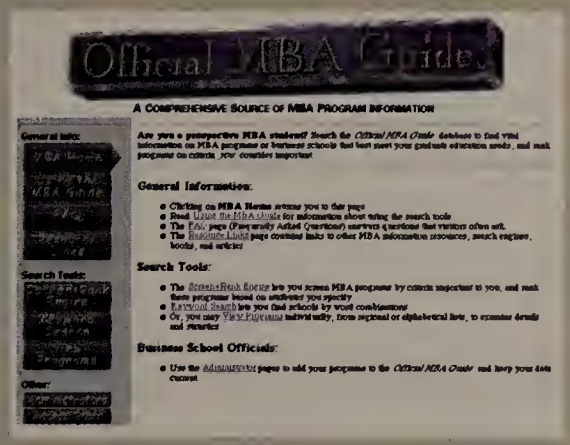
The sites overlap on many points, all containing essays on why you should get a master's of business administration, how to choose the program that's right for you, how to navigate the financial aid system and data on distance-learning programs.

The following are some of the standout sites for professionals who are eyeing graduate school and additional uniform resource locators for information junkies.

FEATURED SITE:

Official MBA Guide

unicorn.us.com/guide/



This site professes to have the most sophisticated MBA search engine on the World Wide Web. That's a pretty fair claim, but you nearly need an MBA to use it. The detailed instructions are mandatory reading. It sounds complicated, and it is. But run through it once or twice, and you'll find it an estimable assistant if you're having a hard time deciding which schools to consider.

It has three parts: In part 1, specify the location and type of program you're seeking (full time, part time, distance learning, executive education and so forth). Part 2 offers the chance to rank the schools that match your selections in part 1 according to attributes such as average GMAT scores, graduates' starting salaries and percentage of students with work experience. Part 3 screens the selections based on criteria related to the school itself, the student body and the classroom environment and curriculum. Limit yourself to one or two choices in parts 2 and 3, or you'll likely get no matches.

If you prefer a more traditional search-and-destroy mission, you can search by keyword or by geographic region in the U.S. and abroad. The depth and breadth of the information on each school is unmatched by other online MBA guides. It includes address, phone number, URL and E-mail address; accreditation, size and enrollment of the school; distinguishing attributes such as foreign affiliations; a complete rundown of the facilities; MBA faculty profile; alumni statistics; tuition and fees; student body profile; and a listing of degrees offered.

WORTHY BOOKMARKS:

MBA CollegeEdge.com

www.MBA.CollegeEdge.com/

A very close contender for Featured Site. This site is notable for its online applications to 33 participating schools and an intelligent agent that searches for business schools according to your detailed criteria. The site's major drawback: Registration is required, and many of its best features link to the *Business Week* site, which requires an additional, lengthy registration process. So if you are casually browsing, use any of the other sites listed here.

You have to cruise to *Business Week* to get detailed school profiles. But you can link to the universities' home pages from here or submit a request for more information to be sent to your snail-mail address.

The Top 10 Leading Business Programs

www.top10.org/

This is a rather plain site, but it's efficient, especially if you're interested in the cream-of-the-crop business schools. It's maintained by The Business Education Commission, a nonprofit organization in Washington and Brussels. It ranks graduate programs by student and alumni satisfaction surveys, academic feedback, international appeal and prestige within the business community.

The separate listings of Top 10 programs in the U.S., Europe and the Asia/Pacific region are worthy for their scope of information on each school. They include tuition and fees, graduates' median starting salaries, the average age and work experience of students, average GMAT scores, percentage of women and foreign students and an environment and quality-of-life rating. Lists of the Top 50 U.S. and European programs are also available.

MBA Plaza

www.mbaplaza.com/

The best feature at this site is a TechnoMBA Faq, which links to *Computerworld*'s listing of the Top 25 programs for technology-oriented MBA programs (*www.mbaplaza.com/edit/techno.htm*). It includes articles on salaries, long-range opportunities, types of jobs available, statistics on graduates and other relevant topics.

Overall, the site has an international slant and some features that other MBA sites lack, such as an up-to-date news section. Also, check out the first-person accounts of people's experiences with MBA programs and how the degree has shaped their careers. Links to alumni associations are also included, making networking with other MBAs a little easier. □

Goff is a freelance writer in New York.

MOREONLINE

For additional Web site listings with Techno-MBA information, see Leslie Goff's expanded column in the IT Careers section of *Computerworld online*:

www.computerworld.com/more

CAREER Watch

Score new hires

Having trouble scoring information technology recruits? Try football. At direct retailer Lands' End, Inc. in Dodgeville, Wis., employees receive one entry in a special drawing for every job candidate they refer. The grand prize is a trip to the Green Bay Packers' Nov. 1 game against the San Francisco 49ers, complete with a tailgate party. Go, team!

IT jobs aplenty

IT hiring efforts are still going strong, according to 1,400 chief information officers surveyed for RHI Consulting, Inc.'s quarterly Information Technology Hiring Index. In the next three months, 31% of CIOs expect to hire more IT personnel. In the South Atlantic states, 36% of CIOs predict staff additions, up 11% from the second-quarter forecast.

Wheat from chaff

McKesson Corp., a drug distributor in San Francisco, is irked by the spam it gets on its corporate World Wide Web site. Yet amid the junk mail are nuggets of gold: the resumes of qualified IT professionals. The company says its site has been indispensable in filling IT jobs at a time when applicants are scarce.

Genentech, Inc., also in San Francisco, gets so much E-mail on its corporate Web site that it restricts its replies to serious job seekers and potential investors. Monsanto Co. in St. Louis has assigned a Web site guru to route E-mail inquiries and resumes.

Seeking search firms

Not all IT search firms are alike or qualified to find the specialized talent you need. For Lina Fafard's tips on how to find the firm right for you, see her column in the IT Careers section of *Computerworld online* (*www.computerworld.com/more*).

Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering and mathematical analysis, with 5 years of experience using Oracle, Unix, PL/SQL, SOL Loader, SQL Plus, Oracle Forms, Oracle Reports, Developer 2000, Oracle Case Tool-Designer 2000, with some experience in Oracle Financials and Windows 95. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $75,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 7039429, to: Mr. Ron Marsh, Manager, Alle-Kiski Job Center, 3 Kensington Square, New Kensington, PA 15068.

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DATABASE DESIGN ANALYST required. Design and configure databases, plan data conversions and analyze/implement optimal Windows NT database administration solutions. Master's degree required in MIS or any business related computer field of study with one year of experience required in any occupation performing the job duties described above. Must have proof of legal authority to work in the U.S. Salary: $43,000/year for a 40-hour work week. Submit resumes to: Jane Hosley, JO#KY369593, Department for Employment Services, 275 East Main St., 2nd Floor West, Frankfort, KY 40621. Ad paid by an Equal Opportunity Employer.

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SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in DB2, CICS, VS COBOL and Expeditor. Requirements: Masters Degree in Computer Science or related field and one year experience as a software engineer or Bachelor's Degree in Computer Science or related field and five years experience as a software engineer, knowledge of PowerBuilder 5.0, PFC, Oracle 7.0 and C. Salary: $57,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: Mr. Stan Majesky, Greene County Job Center, 653 East High Street, Waynesburg, PA 15370, Job No. 7039240.

Software engineer with 5 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using Oracle RDBMS, Oracle Order Entry, Accounts Receivable, Unix PL/SOL, Developer 2000 (Oracle Forms and Oracle Reports). Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $75,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 7039438, to: Mr. Terry Kinney, Manager, Armstrong County Job Center, 1270 N. Water St., P.O. Box 759, Kittanning, PA 16201.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in DB2, CICS, Expeditor and VS COBOL II. Requirements: Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of DB2, CICS, Expeditor and VS COBOL II. Salary: $63,000/ year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: Mr. James Woods, Pittsburgh East Job Center, 6206 Broad Street, Pittsburgh, PA 15206, Job No. 5019558.

Software engineer with 18 months of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 18 months of experience using Powerbuilder, Oracle RDBMS, Visual C++, and Windows. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer science or physics. $65,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 5019675, to: Mr. Terry Faust, Manager, Washington Job Center, 75 East Maiden Street, Washington, PA 15301.

Software engineer with 3 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using Oracle RDBMS, Designer 2000, Oracle Case, SOL, PL/SOL, Unix, and Windows. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer science or physics. $75,000/ yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 7039416, to: Mr. James Mackin, Actg. Manager, Pittsburgh North Job Center, 1122 Western Avenue, Pittsburgh, PA 15233.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in IDMS, ADS/O, Cobol and DB2. Requirements: Bachelor's Degree in Computer Science or related field and one year experience as a software engineer, knowledge of IDMS, ADS/O, Cobol and DB2. Salary: $57,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/ week. Apply: Mr. Terry Kinney, Armstrong County Job Center, 1270 N. Water Street, PO Box 759, Kittanning, PA 16201, Job No. 5019551.

Software engineer with 2 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 2 years of experience using Oracle and SOL, with some experience in C++. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $65,000/yr. 40 hours/ wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9085565, to: Mr. Tom Deboskey, Manager, Indiana Job Center, 350 N. Fourth Street, Indiana, PA 15701.

Software engineer with 3 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using Oracle RDBMS, Unix, and Windows 95. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer applications or physics. $60,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9085569, to: Ms. Joan Lang, Manager, Pittsburgh West Job Center, 320 Bilmar Drive, Pittsburgh, PA 15205.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in DB2, CICS, VS COBOL and Expeditor. Requirements: Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of DB2, CICS, VS COBOL and Expeditor. Salary: $57,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: Mr. Duane M. Brentzel, Office of Employment Security, 599 Sells Lane, Greensburg, PA 15601, Job No. 5019549.

Software engineer with 5 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using Oracle, Oracle Reports, Oracle Forms, and PL/SOL. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer science, business or physics. $85,000/yr. 40 hours/ wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9085573, to: Mr. Duane Brentzel, Manager, Greensburg Job Center, 599 Sells Lane, Greensburg, PA 15601.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Powerbuilder, Developer 2000, Oracle and C. Requirements: Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of Powerbuilder, Developer 2000, Oracle and C. Salary: $57,000/ year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/ week. Apply: Mr. Tom Rusnack, Charleroi Job Center, 10 Paluso Dr., PO Box 210, Charleroi, PA 15022, Job No. 7039224.

Software engineer with 5 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using Oracle, Oracle Reports, PL/ SOL, and Oracle Forms. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer applications, or physics. $75,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 6019753, to: Mr. James Clarke, Manager, Uniontown Job Center, 32 Iowa Street, Uniontown, PA 15401.

Software engineer with 3 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using Oracle RDBMS, Oracle Case Tools-Designer 2000, Developer 2000, SOL Plus, PL/SOL. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $65,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9085538, to: Mr. Richard Introcaso, Actg. Mgr., Beaver County Job Center, 120 Merchant Street, Ambridge, PA 15003.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in CICS, DB2, Expeditor and VS COBOL II. Requirements: Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge of CICS, DB2, Expeditor and VS COBOL II. Salary: $57,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: Mr. Terry Faust, Washington Job Center, 75 East Maiden Street, Washington, PA 15301, Job No. 7039238.

Software engineer with 3 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using TACL, TAL, C, NonStop SOL, FUP, Pathway and Tandem Systems. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer science or physics. $65,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9085630, to: Mr. John McCraley, Manager, Butler County Job Center, 227 West Cunningham Street, Butler, PA 16003.

Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using HP-UX, HP-9000, Sun Solaris, VAX/VMS, Unix, and Network System Administration. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $81,000/yr. 40 hours/ wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9085529, to: Mr. Stan Majesky, Manager, Greene County Job Center, 653 East High Street, Waynesburg, PA 15370.

SOFTWARE ENGINEER
Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in DB2/400, RPG 400, and Query/ 400. Requirements: Bachelor's Degree in Computer Science or related field and two years experience as a software engineer, knowledge DB2/400, RPG 400, and Ouery/400. Salary: $57,000/ year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week. Apply: Mr. Vincent Mezeivtch, Mon Valley Job Center, 345 Fifth Avenue, Mckeesport, PA 15132, Job No. 2019761.

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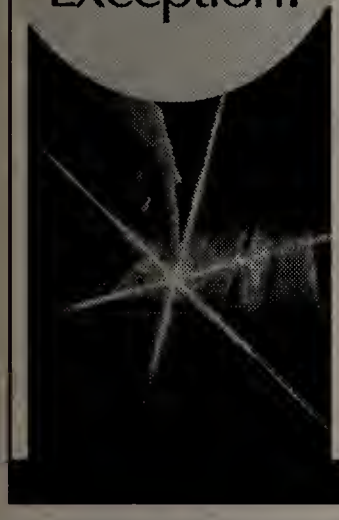

At Block Drug Company, Inc., we are known the world over for our popular consumer and dental products like Tegrin®, Nytol®, Polident® & Sensodyne®. We are equally proud to be known for the outstanding technical careers our success creates!

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We offer an attractive compensation and benefits package including a 401K savings plan. For consideration, please send your resume which MUST include salary requirements to: **Human Resources Department INF, Block Drug Company, Inc., 257 Cornelison Avenue, Jersey City, NJ 07302. Fax: 201-434-5071.** E-mail(ASCII format only please): human_resources@blockdrug.com Visit us at: www.monster.com. EOE. We appreciate your interest in our Company and will contact applicants who meet our requirements.

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DIRECTOR OF COMPUTER TECHNOLOGY SERVICES

Kutztown University invites applications for the position, Director of Computer Technology Services. This position has planning, implementation, evaluation and operating responsibilities for technical aspects of the Information Technology Services division for a public university with approximately 8000 students. Located in southeastern Pennsylvania, Kutztown University is within 20 minutes driving time of Allentown and Reading, 1½ hours north of Philadelphia and 2 hours west of New York City.

The Director of Computer Technology Services will have both operational and planning responsibilities for key technical areas of the division, which may include portions of administrative, academic and networking services. The successful candidate must have a minimum of a Bachelor's degree (graduate work or Master's degree preferred), excellent written and oral communication skills, ten or more years of progressive data processing experience in technical areas (e.g. systems programming, networking, technical systems analysis) including a minimum of four years in management and supervision. The individual must either have experience in diverse and emerging technologies or be able to demonstrate current knowledge of such technologies, including such platforms as IBM or Digital, client server, web technologies/Intranet, imaging, audio response systems, and data warehousing. Past experience in a mainframe-level installation is critical and experience in a higher education environment is highly desirable. Successful interview and demonstration of ability are requisite qualifications.

Applications must include a letter of intent, resume and names, titles, telephone numbers and addresses of five professional references. A review of credentials will begin on August 17,1998. Applications and nominations should be addressed or faxed to: Mr. Richard S. Zera, Vice President for Information Technology, Kutztown University, Kutztown, PA 19530.

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We are an equal opportunity employer and offer a smoke-free work environment.

AS/400 SYSTEMS ANALYST (Multiple Openings)

Will analyze, design, code and tests programs for business applications and develop business solutions within the IS infrastructure. Individuals will provide programming support for software applications and assists on project management tasks. Qualified candidates will possess a Bachelors degree in Computer Science and 3-S years of RPG and CL programming experience. Excellent problem solving and communication skills are required as is the ability to multi-task and to work both independently and within a team. **Code: CW/ASA**

AS/400 SYSTEMS PROGRAMMER

Will install, upgrade and maintain OS/400, Communications Network and DB/400 Database Administration at multiple locations. Individual will provide support for the daily operation of local and remote data centers. Qualified candidate will possess a Bachelors degree in Computer Science and 3-S years OS/400 operating system experience. Strong CL programming experience is a plus. Individual must have excellent problem solving skills and be able to multi-task. Some travel is required. **Code: CW/ASP**

DELPHI SYSTEMS ANALYST

Will provide programming support for Client Server and Internet applications as well as develop and test programs for business applications and implement business solutions within the IS infrastructure. Qualified candidate will possess a Bachelors degree and a minimum of 3-S years programming experience in Object Oriented Development Tools and previous experience supporting remote users. Knowledge of Borland Delphi 3.0, Microsoft SQL Server 6.S, Borland Interbase database engines is required. Experience in developing systems in a network environment is required along with excellent communication and problem solving skills. Knowledge of Rational SQA Team Test Suite and Internet/Intranet development skills is a plus. **Code: CW/DA**

CLIENT SERVER DATABASE ADMINISTRATOR

Will support, develop, analyze and design application data bases using MS SQL Server Database. Qualified candidate will possess a Bachelors degree and a minimum of 3-S years experience in relational database support and performance tuning. Knowledge of Windows NT, TCP-IP, SQL Query is required along with excellent communication and problem solving skills. Knowledge of DB2/400 and replication tools is a plus. **Code: CW/CS**

HELP DESK/PC SYSTEMS ANALYST

Will provide first level technical support to both local and remote PC End Users. Individual will install, upgrade and maintain both hardware and software, perform hardware diagnostics and resolve problems with PC software packages, primarily Windows 9S, Windows NT and Microsoft Office Suites. Knowledge of both Token Ring and Ethernet LAN connectivity in a Microsoft NT Server environment is required. Individual must be able to prioritize work flow to minimize End User Down time and be able to work independently and within a team. Qualified candidate will possess a Bachelors degree in Computer Science and 3-S years of related work experience. **Code: CW/HD**

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Requirements:

Software Analyst II: B.S. in Computer Sci., Computer Eng., or related field and 2 yrs. exp. in the job offered or 2 yrs. exp. as a Software Engineer. Concurrent exp. must include: 2 yrs. exp. using C and C++ languages on a UNIX operating system and 2 yrs. exp. performing unit testing, integration testing and bug verification. Salary: $60,000/yr.

Windows Developer (Programmer): M.S. in computer Sci., Eng., Math or related field. Coursework must include classes in advanced or accelerated computer programming using C, C++ and Delphi languages and network design analysis. Salary: $54,000/yr.

Software Developer I: B.S. in Computer or Info Sci., Eng., or related field. Coursework must incl. classes in Programming Languages using C, C++ & Delphi, & Operating Systems using Windows. Salary: $38,500/yr.

EOE. 40 hrs./wk.; 8:00 a.m. to 5:00 p.m. Send resume (no calls) to: Cathy Dyer, Datatrac Corporation, 8601 Dunwoody Pl., Bldg. 600, Ste. 626, Atlanta, GA 30350. Must have legal authority to work in the U.S.

F/T Oracle Database Administrator wanted to perform Oracle7 installation and upgrades, logical and physical design of Oracle database, implement backup-recovery procedures, performance tuning of database & application, develop packages & stored procedures implementing business rules and database integrity. Must have 3 years of industry experience with at least 2 years experience in above mentioned areas. Use of Oracle 7/7.x, PL/SQL, SQL* Plus, Server Manager, Enterprise Manager, SQL*Loader, Pro*C, Unix & its utilities, is required. Bachelor of Science required. Apply by resume to: John Morrison, Patel Consultants Corp., 1525 Morris Ave., Union, NJ 07083.

ENG Software: (Job site/interview: Stamford, Ct.) Analyze, develop, test, and support software solutions on Windows operating system. System/Project Management tool development on commercial computer systems utilizing in-depth knowledge of Visual C++, MFC, Windows SKD, OLE, OD8C, Sybase RD8MS. Min. B.S. in Information Systems/Electronics plus 3 yrs. exp. in job offered or 3 yrs. related exp. within the computer programming industry. Must have exp. in applications development using Windows operating systems, Parsing utilities, LEX and YACC. Salary: $65,104/yr. 40 hrs./wk. Applicants will be required to present proof of legal authority to work in the U.S. Send resume and cvr. ltr. documenting min. qualifications to Job# 3216781. Program Support-3rd Floor, Conn. Dept. of Labor, 200 Folly Brook Blvd., Wethersfield, Ct. 06109.

Programmer Analyst needed for computer software development and consulting firm located in Duluth, Georgia. Job duties include: Analyze, design, develop, test, implement, and re-engineer computer software applications. Consult on various in-house projects and/or contract basis throughout the United States. Use PROGRESS 4GL, Oracle, SQL, C, UNIX, Shell scripts, in Windows and MS-DOS environment. Perform database and system administration. Applicant must have B.S. degree in Computer Science or Information Science. Applicant must also have 2 yrs. exp. in the job duties described above or as a Programmer Analyst or Consultant which includes 2 yrs. designing and developing computer applications with PROGRESS 4GL, SQL and UNIX. 40 hrs/wk, 8:00 am - 5:00 pm, Mon-Fri, $52,997/yr. Report to or send 2 resumes to: Georgia Department of Labor, Job Order #GA6257875, 1535 Atkinson Rd., Lawrenceville, GA 30243-5601 or the nearest Department of Labor Field Service Office.

Programmer Analyst needed for software development and consulting firm located in Duluth, Georgia. Job duties include: Analyze, design, develop, implement, and test computer applications. Consult on various in-house projects and/or contract basis throughout the United States. Use AS/SET Case Tool, BPCS Software package, MAPICS package, RPG/400, CL/400, SQL/400, PDM, SEU, SDA, RLU, and DFU on IBM AS/400 machine. Applicant must have 4 yrs. exp. in the job duties described above or as a Programmer Analyst which includes 4 yrs. designing and developing computer applications with RPG/400 and CL/400 on AS/400 machine with 2 yrs. of SQL/400. B.S. degree in Computer Science and 2 yrs. exp. with skills listed above also acceptable. 40hrs/wk, 8:00 am - 5:00 pm, Mon-Fri, $52,997/yr. Report to or send 2 resumes to: Georgia Department of Labor, Job Order #GA6260167, 1535 Atkinson Rd., Lawrenceville, GA 30243-5601 or the nearest Department of Labor Field Service Office.

Programmer Analyst to plan, develop, test, analyze, prepare specifications & write programs for client d/base using COBOL II, Suprtool, Dbase III+, FoxPro, Oracle on HP 3000 for use in data warehouse; perform testing & documenting to meet quality assurance standards; conduct analysis, programming, testing & documentation of pharmacy reports of drugs d/base; Reqs. Bach. in Comp. Sci., Comp. Engg., Comp. Info. Systems or Comp. Applications, 2 yrs exp in job offered or 2 yrs related exp such as Systems Analyst or Consultant. Related exp must include system administration, programming, analysis, design, development, testing, implementation & documentation using COBOL, AS-400. Dbase III+, FoxPro & Oracle; $52,100/yr, 40 hrs/wk, OT as reqd 8a-5p. Send resume or report to Dept. of Labor, Licensing & Regulation, 1100 N Eutaw St., Room 201, Baltimore, MD 21201. Refer to Ref. #9680090

Programmer Analyst needed for software development and consulting firm located in Duluth, Georgia. Job duties include: Analyze, design, and develop software applications on IBM mainframe. Enter, run, and test codes. Use DB2, CICS, JCL, VSAM, TSO/ISPF/PDF, COBOL II, MVS/ESA, MVS/XA, ADW, and MS-DOS. Applicant must have B.S. degree in Electrical Engineering or Computer Science. Applicant must also have 2 yrs. exp. in the job duties described above or as a Programmer Analyst or Software Engineer which includes 2 yrs. analyzing and designing computer applications using COBOL II, VSAM, DB2, and CICS. 40hrs/wk, 8:00 am - 5:00 pm, Mon-Fri, $52,997/yr. Report to or send 2 resumes to: Georgia Department of Labor, Job Order #GA6259416, 1535 Atkinson Rd., Lawrenceville, GA 30243-5601 or the nearest Department of Labor Field Service Office.

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VALLEY HEALTH SYSTEM, a leading regional health care provider, has the following opportunities in its rapidly expanding Information Systems Department (sign on BONUS available for some positions):

NETWORK ANALYST

Three years experience and five years preferred with UNIX operating systems and associated programming languages. Previous experience in an ABM RS/6000 – ICPIP environment a plus.

SYSTEM ANALYST

Provide assistance with the detail design of application logic, including application programs, which provide functional reports to customers. The assumption of an analyst role for patient billing applications.

SR. PROGRAMMER/ PROGRAMMER ANALYST

Experience with IBM AS/400 and RPG III required. IBAX SERIES 4000, HBOC software and health care experience are assets.

COMPUTER MAINTENANCE PROJECT SPECIALIST

College degree preferred or technical AS degree required. Must have 5 years experience with large PC networks, installation and support, and 3 years experience with PC software integration, especially Windows 95, AS/400, Microsoft Office and Microsoft exchange. Demonstrated troubleshooting skills with PCs, AS/400 & Novell Network required; CNE preferred.

INFORMATION SECURITY COORDINATOR

Required is at least 3 years experience in dealing w/information handling, workflow and systems. Specific experience w/operations and management of information system security preferred.

INTERFACE SENIOR PROGRAMMER

Should have 2-3 years using UNIX and 3-5 years of Information System experience. Knowledge of C programming language and HL 7 data format required. Prior experience in interfacing computer systems required.

All positions require a BA degree or equivalent background.

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Please forward your resume and cover letter, specifying position of interest, to: **Human Resources Dept., VALLEY HEALTH SYSTEMS, 333 West Cork St., Winchester, VA 22601. Fax (540) 665-5320.** EOE M/F/D/V

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Regional Project Managers - Duties include: manage multi-site & off-shore development projects for multinational clients; multi-site Y2K compliance management; assure project quality standards according to ISO 9001, SEI, Six-Sigma; regional account/marketing management. Must have: MS (or equivalent) in MIS, three years management exp in off-shore development projects.

All positions full time, may require international assignment. Salary commensurate with educ & exp. Mail/fax/email resume to Carol Mendez, Coordinator, Data Conversion Inc., 238 Main Street, Cambridge, MA 02142. Fax: (617) 876-4711. E-mail: mktjobs@dci.patni.com.

Technical Project Manager to lead & architect all aspects of projects related to software design, development, testing & support w/ a customer-oriented focus in a 3-tier client/server applications management environment. Provide customer services & serve as primary technical consultant in both pre and post sales roles. Provide account management w/ respons for meeting customer requirements & specifications & ensuring customer satisfaction w/ technical support for installed applications management software systems. Requires B.S. in CS or EE and 4 yrs exper in Job Offered OR 4 yrs exper in application development within a 3-tier distributed client/server environment. Candidate must also possess demonstrated expertise designing & developing software tools for 3TCSA systems & applications based on OSF/DCE standards; demonstrated expertise in Project Management of distributed client/server applications; demonstrated expertise in customer consulting including performing feasibility studies for system implementation & demonstrated expertise in empowerment strategies & providing training to clients. Sal: $70,000/yr; M-F, 9AM-5PM. Send resumes to: Case Number 72253, P.O. Box 8968, Boston, MA 02114. EOE. Applicants must be U.S. workers eligible to accept employment in the U.S. on a full-time basis.

SOFTWARE ENGINEER to perform analysis, design, development, project management, testing, performance tuning, implementation, customization, partitioning, documentation, database design & management, network configuration, maintenance and enhancement of client/server systems using distributed technologies and CASE tools on Windows NT and UNIX platforms, develop custom solutions, event driven routines, application architecture, work flow paradigm, functional specifications, database queries and procedures for client/server projects utilizing skills in PowerBuilder 5.0, Sybase System 11, Oracle 7.0, SQL, VisualBasic 4.0, Visual C++, object oriented programming, TCP/IP, PVCS, Project Management Systems, software life cycle methodology and Novell Netware. Require: Master in Engineering or Computer Science and two years experience in the job offered. Must be certified PowerBuilder Developer. Job location: Greenville, SC. 50% travel required to customer sites within the United States. Salary: $60,000 per year, 8 am to 5 pm, M-F. Mail resume in duplicate to: Ms. Regina D Ratterree, E&T Technical Services, SCESC-SC2000768, P.O. Box 1406, Columbia, SC 29202.

PROGRAMMER ANALYST. $40,000.00 per year. 40 hrs/wk 8:30 am - 6:30 pm. Immediate opening within a firm located in Memphis, Tennessee. Will troubleshoot, maintain and provide version release development to a 500+ call center application currently in production. Oversee and develop version enhancements, utilizing Microsoft Visual C++, Visual Basic, Access, SQL Server, Windows 95, Window NT Workstation and Server Operating System and Microsoft Office Tools. Work with end users to diagnose and correct system problems. Create and maintain support applications to assist the maintenance process. Require a BS in Computer Science or Engineering and at least 24 hours of successfully completed graduate level coursework in Computer Science. One year of educational or practical programming in Visual C++ in Windows 95. Send resume to Andy Rains, Job Service Program & Technical Support, Department of Employment Security, 500 James Robertson Park way, 11th Floor, Nashville, Tennessee 37245-1200, Ref. Job Order No. TN 6200869. EOE.

SENIOR SOFTWARE ENGINEER: Manage customization, testing, implementation and development of enhancements for software supporting digital wireless network utilizing GSM technology; maintain software supporting Ericsson AXE-10 switching network; perform switch dimensioning and analysis of traffic counters of network performance utilizing METRICA; test and verify new network features; implement first office application and software roll-out in the switching network and base station controller network; advance troubleshoot; track network faults; produce monthly statistical reports regarding faults and demand and facility forecasting; train engineers and technicians; provide 24-hour overall support. Experience must have included four years of experience in software engineering for a digital wireless network utilizing GSM technology. Must have a Bachelor's degree in Engineering or its foreign equivalent. Salary: $62,775.00 per year. Must have proof of authorization to work in the United States. If interested, send resume in duplicate to: Richard K. Howard, Manager, Human Resources Administration, Powertel, Inc., 1233 O. G. Skinner Drive, West Point, Georgia 31833.

System Administrator: Various unanticipated locations in US. Design & implement LAN & WAN networks, port sys. to UNIX platform, develops storage mgt. programs, provide backup, in a UNIX environment, performs various admin tasks written in C, C++, Pascal, admin tasks. Reqs B.S. in Comp Sci or equiv, 2 yr exp in job offered. 40 hr/wk, 9-5, M-F, $53,100/yr. Must have proof of legal auth to work in US. Report in person or send 2 resumes to North Metro, JO# GA 6262460, 2943 N Druid Hills Rd, Atlanta, GA 30329 or nearest Dept of Labor Field Service Office.

Project Mgr: Plan strategies & analyze user req'ts, etc. to develop Motor/Generator monitoring & diagnostic sfwr; Supervise & solve tech. problems in proj. design, specific'n, & program'g w/ Java, C/C++, VB, Guro, GPSS/H, Sys. Architect, ComponentWorks, Oracle/SQL in Client/Server; Review & approve time, cost, resource estimates & monitor schedule; coordinate activities in sfwr develop't, implement'n, maint. & upgrade. 40h/w, 8-5, $60k/yr, BS in Comp/Info Sci related, 2 yr as Sys. Analyst dealing w/ Motor Monitoring sys. Resume to Bureau of Workforce Support, PO Box 10869, Tallahassee, FL 32302, Re: Job#1834562.

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- JAVA/HTML/CGI, CORBA, PERL
- AS400, RPG400, TELON, Expediter
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Systems Analyst needed for computer software development and consulting firm located in Duluth, Georgia. Job duties include: Analyze, design, develop, test & implement computer software applications. Consult on various in-house projects and/or contract basis throughout the U.S. Re-engineer software applications using state-of-the-art tools & techniques. Use COBOL II, MVS/JCL, DB2, IMS DB/DC databases, VSAM databases, VS/CICS, INTERTEST, XPEDITER, Job-Scheduler, FILE-AID, and EASYTRIEVE in MVS/XA/ESA environment. Applicant must have a b.s. degree in computer science or engineering & 2 yrs. exp. as a systems analyst or programmer analyst to include 2 yrs designing and developing computer software applications with VSAM databases, COBOL II, DB2, XPEDITER, EASYTRIEVE in MVS/XA/ESA environment or 2 yrs. in skills listed above also acceptable. 40 hrs/wk, 8 am - 5pm, Mon-Fri, $52,997/yr. Report to or send two resumes to Georgia Dept of Labor Gwinnett, Job order #GA6263890, 1535 Atkinson Rd. Lawrenceville, GA 30243-5601 or the nearest Dept of Labor Field Service Office.

Database Administrator wanted by IT Co. in Union, NJ. Must have 2 yrs exp performing d/base admin on RS/6000, AIX Sun Sparc Server, Sun OS & Windows Server platform using Sybase SQL Server in online envrmt. and performing admin jobs using K Shell & C Shell prgmg. Apply by resume to: John Morrison, Patel Consultants Corp., 1525 Morris Ave., Union, NJ 07083.

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Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop software systems applying computer science, engineering and mathematical analysis, with 5 years of experience using RDBMD, Unix, Windows, C, and C++, with at least 2 years experience using Visual C++ and MFC. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor;s degree in one of several limited fields: engineering, mathematics, computer science or physics. $65,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 5019689, to: Mr. Vincent Mezeivtch, Manager, Mon Valley Job Center, 345 Fifth Avenue, McKeesport, PA 15132.

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Software engineer with 18 months of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 18 months of experience using COBOL, DB2, JCL, TSO, MVS/ESA and IBM ES/9000. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $60,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 8039617, to: Mr. Clement Pizzutelli, Manager, Connellsville, Job Center, 1051 Morrell Ave., PO Box 868, Connellsville, PA 15425.

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Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using Oracle, PL/SOL, SOL Forms, SOL Plus, and DOS, with some experience in Oracle Applications. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $68,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 8039587, to: Mr. Greg Schwing, Manager, Pittsburgh, South Job Center, 2100 Wharton Street, Pittsburgh, PA 15203.

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Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using IBM PC DAS System, and TDMA-PMP, with at least some experience using HDLC, OMC, LAN, and DECT. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $70,000/yr, 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 9085628, to: Ms. Charlene Cogley, Manager, Beaver Falls Job Center, 2103 Ninth Ave. Beaver Falls, PA 15010.

Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 3 years of experience using Oracle RDBMS and PL/SOL, with some experience using UNIX. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $75,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 2019883, to: Mr. John McCraley, Manager, Butler County Job Center, 227, West Cunningham Street, Butler, PA 16003.

Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using Oracle RDBMS, and Unix, with at least 1 year of experience using Developer 2000, Pro C, PL/SOL, SOL Forms, SOL ReportWriter and C. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $114,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 1019720, to: Mr. Tom Rusnack, Manager, Charleroi Job Center, 10 Paluso Drive, P.O. Box 210, Charleroi, PA 15022.

Software engineer with 1 year of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 1 year of experience using MS SOL Server and Windows NT. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Master's degree in one of several limited fields: engineering, mathematics, computer science or physics. $70,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 7039491, to: Mr. Clement Pizzutelli, Manager, Connellsville Job Center, 1051 Morrell Ave., PO Box 868, Connellsville, PA 15425.

Software engineer with 5 years of experience as a s/w engineer or computer professional, with supervisory experience, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 5 years of experience using Oracle, SOL Plus, PL/SOL, SOL Loader, Oracle Tools, Reportwriter and Export/Import. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $60,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 8039674, to: Mr. Richard Introcaso, Actg. Mgr., Beaver County Job Center, 120 Merchant Street, Ambridge, PA 15003.

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7:45am **Continental Breakfast & Conference Registration**

8:30am **Concurrent Sessions:**
- **Building an Internet Recruitment Strategy**
  Tracey Claybrooke, Claybrooke & Associates
- **Attracting, Retaining and Engaging IT Talent**
  Jackie Cudahy & Len Tenner, Hewitt Associates
- **High Tech/High Touch: Creating the Recruiting Office of the Future**
  Sue Keever, The Keever Group

10:00am **Sponsor Showcase/Coffee Break**

10:30am **General Session:**
Recruiting - Into the Next Millennium
Gary Cluff, President, Cluff & Associates

12:00pm **Luncheon Keynote:**
Joe Maglitta, Industry Editor, Computerworld

1:30pm **Town Hall Forum**
Mark Jeske, Moderator, May & Speh

3:00pm **Sponsor Showcase/Coffee Break**

3:30pm **Concurrent Sessions repeat:**
- **Building an Internet Recruitment Strategy**
  Tracey Claybrooke, Claybrooke & Associates
- **Attracting, Retaining and Engaging IT Talent**
  Jackie Cudahy & Len Tenner, Hewitt Associates
- **High Tech/High Touch: Creating the Recruiting Office of the Future**
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5:00pm **Program ends**

Selected Sessions Include:

Luncheon/Keynote Address
Joe Maglitta
Industry Editor, Computerworld

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Building an Internet Recruitment Strategy
Tracey Claybrooke
President, Claybrooke & Associates, Inc.

As mass advertising reaches a consumer by television, radio, billboards, print media in various locations and venues - this same marketing/prospecting effort can take place on the internet to maximize your recruitment efforts. Learn about this and more in this session.

Recruiting - Into the Next Millennium
Gary Cluff
President, Cluff & Associates

The rapidly growing economy and the baby bust have combined to create today's highly competitive technical recruiting market. Will it be survival of the fastest, or the richest, in the years ahead? This look at the demographics, recruiting trends, reengineering efforts and emerging practices in the employment industry may help to identify what we can expect as we rush into the new millennium.

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Mark Jeske
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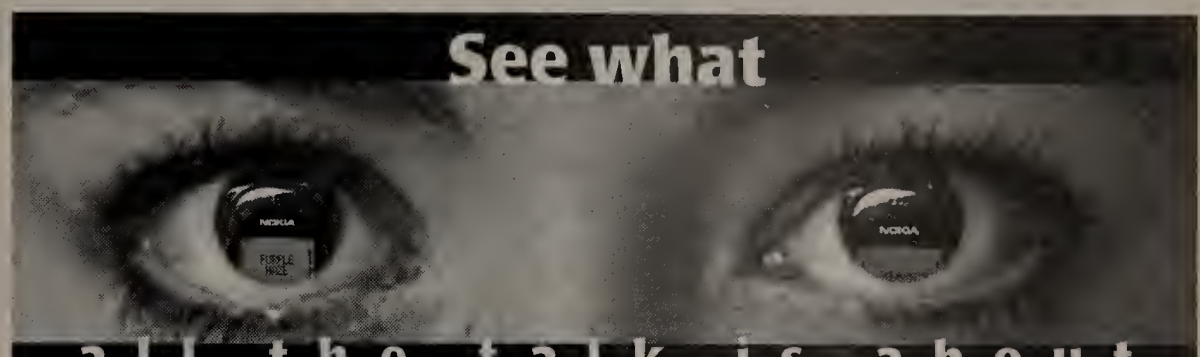

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Responsibilities will include maintaining and developing security strategy for all R/3 applications, administering R/3 security profile and other functions related to System Administration. Ideal candidate will have minimum of 6 months experience of security profile and user account administration with SAP or similar ERP system. Experience in a help desk function preferred. Excellent written and verbal communication skills and some project leadership experience desired. Experience with R/3 correction & transport system and UNIX desired. **(Code: AA)**

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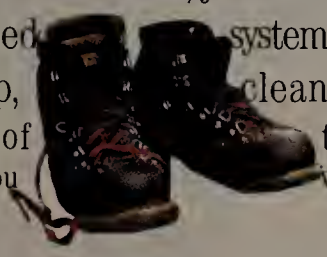

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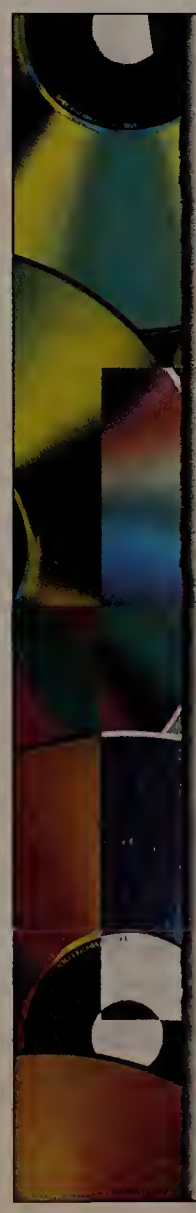

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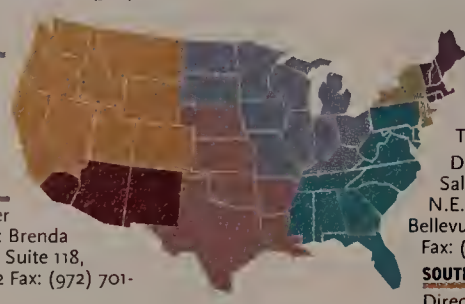

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The Week in Stocks

Gainers

PERCENT

Emulex Corp.	27.7
Komag Inc. (L)	24.1
Stratus Computer Inc.	22.3
Systemsoft Corp.	21.1
ObjectShare, Inc.	20.0
Brooktrout Technology	19.8
Centura Software	19.5
Network Equipment Tech.	19.2

DOLLAR

Stratus Computer Inc.	6.44
Lycos Inc.	5.25
Excite, Inc.	5.19
Micrel Semiconductor Inc.	4.94
Xilinx	4.63
Computer Associates (L)	4.56
Electronic Data Systems Corp.	4.38
Great Plains Software, Inc	3.88

Losers

PERCENT

American Software Inc. (L)	-32.6
Pegasus Systems	-27.7
Cayenne Software Inc. (L)	-23.1
Quarterdeck Corp. (L)	-19.0
VanStar Corp. (L)	-19.0
Radius Inc. (L)	-18.8
Edify Corp. (L)	-16.4
Netscape Comm. Corp.	-15.9

DOLLAR

America On-Line	-10.13
Pegasus Systems	-6.31
Microsoft Corp.	-5.94
Shared Medical Systems	-5.38
Xerox Corp.	-5.25
IBM (H)	-5.19
Compuware Corp.	-5.13
Netscape Comm. Corp.	-4.75

INDUSTRY ALMANAC

Promise of the future

SAP AG chose such a lousy week to debut on the New York Stock Exchange that even its strong financial fundamentals and its premier position in the business applications market couldn't save it from the ravages that swept Wall Street.

Soon after SAP AG's party on nearby Broad Street, the price took a big dip. The stock debuted at $60 per share and finished Wednesday at $54.88, down 8.5%.

But analyst Eric Upin at BancAmerica Robertson Stephens says SAP will benefit from listing on the NYSE. Previously, SAP stock, which also is traded in Frankfurt, was difficult to trade in the U.S.

"We're very bullish on SAP for many years to come," Upin says. He also says the market for enterprise resource planning (ERP) software is expected to grow from roughly $10 billion today to between $40 billion and $50 billion by 2003. SAP may grow as fast or faster than the total market, he says.

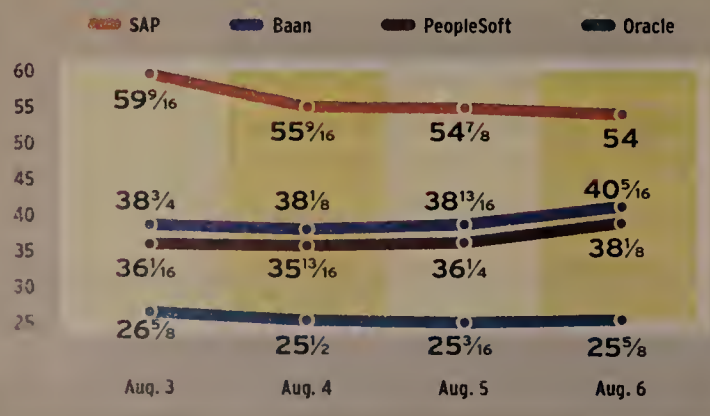
SAP's chief competitors are PeopleSoft, Inc. (Nasdaq: PSFT), Oracle Corp. (Nasdaq:ORCL) and The Baan Co. (Nasdaq:BAANF). Those stocks dropped early last week, though not nearly as much as SAP's new offering. Robert Kugel, an analyst at First Albany Corp., says U.S. investors might not support the premium European investors have given SAP.

Upin says the Germany-based applications vendor gains the following benefits from listing on the NYSE:

- SAP AG's financial performance will be more apparent to customers, who will want to know if their ERP vendor is healthy.
- The stock will trade more often and will be more available to investors, including funds that invest in U.S. markets.
- U.S. employees can now receive stock options, enhancing SAP's recruitment and retention. — David Orenstein

WELCOME TO NEW YORK

SAP joined market rivals as a U.S. stock listing just in time for last week's dip



Exch	52-Week		Range	Aug. 7 2PM	Wk Net change	Wk Pct change
Communications and Network Services					**OFF -1.3%**	
COMS	57.56	22.94	3 COM Corp.	27.31	2.69	10.9
AIT	52.13	30.13	AMERITECH Corp.	46.25	-3.38	-6.8
ASND	55.06	22.00	Ascend Communications	48.38	3.38	7.5
T	68.50	38.00	AT & T	57.75	-3.44	-5.6
BNYN	13.38	1.75	Banyan Systems Inc.	6.59	-0.41	-5.8
BAY	41.88	21.38	Bay Networks Inc.	32.31	-2.19	-6.3
BEL	53.00	36.00	Bell Atlantic Corp.	42.06	-3.88	-8.4
BLS	73.63	43.31	Bellsouth Corp.	65.00	-4.19	-6.1
BRKT	22.75	9.50	Brooktrout Technology	17.75	2.94	19.8
CS	38.50	10.38	Cabletron Systems (L)	10.75	-1.13	-9.5
CGRM	21.88	8.56	Centigram Communications	10.94	-0.19	-1.7
CSCO	104.50	45.50	Cisco Systems Inc.	97.25	-0.19	-0.2
CMNT	6.50	3.38	Computer Network Tech.	5.50	-0.44	-7.4
CNCX	41.00	7.88	Concentric Network Corp.	25.00	0.00	0.0
DIGI	35.69	16.50	DSC Communications	31.44	0.38	1.2
FORE	28.00	13.25	FORE Systems Inc.	24.63	-0.13	-0.5
GDC	8.38	3.25	General Datacomm Inds.	3.94	0.13	3.3
GSX	49.63	35.69	General Signal Networks	39.00	-1.38	-3.4
GTE	64.38	40.50	GTE Corp.	50.31	-4.13	-7.6
LU	108.50	36.19	Lucent Tech.	92.50	-1.88	-2.0
MADGF	9.19	3.25	Madge Networks NV	3.75	-0.25	-6.3
MCIC	70.63	27.31	MCI Communications Corp.	63.13	-2.56	-3.9
NETM	5.25	1.63	NetManage Inc. (L)	2.03	0.00	0.0
NTRX	3.50	0.63	Netrix Corp.	2.56	-0.31	-10.9
NCDI	13.75	5.88	Network Computing Devices	7.56	-0.31	-4.0
NWK	22.38	11.63	Network Equipment Tech.	14.75	2.38	19.2
NN	69.38	18.63	Newbridge Networks Corp. (L)	19.13	-2.06	-9.7
NT	69.25	39.69	Northern Telecom Ltd.	54.69	-4.50	-7.6
NOVL	13.63	6.81	Novell Inc.	10.88	-0.56	-4.9
ODSI	14.50	5.19	Optical Data Systems Inc.	5.50	-0.63	-10.2
PCTL	13.50	5.63	Picturetel Corp.	8.81	0.38	4.4
OPEN	3.50	0.97	Proteon Inc.	1.25	0.03	2.6
RACO	4.13	1.00	Racotek Inc.	2.63	-0.06	-2.3
RADS	29.38	6.00	Radiant Systems Inc (L)	6.88	-0.25	-3.5
VRTL	11.63	1.88	Retix (L)	2.50	0.00	0.0
SBC	46.56	26.75	SBC Communications	39.25	-1.88	-4.6
SFA	27.94	14.00	Scientific Atlanta Inc.	25.06	0.75	3.1
SHVA	16.44	5.06	Shiva Corp. (L)	7.13	1.00	16.3
FON	75.63	45.25	Sprint Corp.	68.75	-1.63	-2.3
QWST	47.50	15.94	QWest Communications	39.13	-2.31	-5.6
SMSC	18.13	7.88	Standard Microsystems Corp.	8.38	-0.38	-4.3
USW	58.00	0.19	U S West Inc. (L)	50.69	-3.00	-5.6
XIRC	22.88	8.63	Xircom (H)	22.88	1.88	8.9
XYLN	31.31	13.38	Xylan Corp.	25.31	0.75	3.1
PCs and Workstations					**OFF -0.9%**	
AAPL	38.13	12.75	Apple Computer Inc.	36.38	0.88	2.5
CPQ	39.75	23.13	Compaq Computer Corp.	34.56	1.44	4.3
DELL	118.25	35.00	Dell Computer Corp.	107.06	-4.44	-4.0
GTW	68.75	25.06	Gateway 2000 Inc.	56.50	2.25	4.1
HWP	82.38	51.13	Hewlett Packard Co. (L)	52.63	-3.69	-6.5
MUEI	21.00	8.44	Micron International Inc.	14.50	0.44	3.1
NIPNY	70.00	41.44	NEC America (L)	41.50	-4.75	-10.3
SGI	30.31	10.00	Silicon Graphics (L)	11.00	-0.31	-2.8
SUNW	53.31	30.38	Sun Microsystems Inc.	49.00	0.50	1.0
Large Systems					**UP 0.8%**	
DGN	37.94	11.00	Data General Corp. (L)	12.56	-0.75	-5.6
IBM	138.13	88.63	IBM (H)	130.88	-5.19	-3.8
MDCD	6.63	3.13	Meridian Data Inc.	3.44	-0.31	-8.3
NCR	38.50	25.63	NCR Corp	32.88	-1.00	-3.0
PRCM	18.63	4.06	ProCom Technology, Inc. (L)	6.19	0.75	13.8
SQNT	31.25	9.38	Sequent Computer Sys.	11.44	0.13	1.1
TEXM	6.00	2.75	Texas Micro Inc	3.50	-0.13	-3.4
SRA	60.75	21.44	Stratus Computer Inc.	35.25	6.44	22.3
UIS	30.69	10.00	Unisys Corp.	25.63	-1.63	-6.0
Software					**OFF -0.9%**	
ADBE	53.13	29.75	Adobe Systems Inc. (L)	30.50	-2.81	-8.4
AMSWA	15.63	3.88	American Software Inc. (L)	3.88	-1.88	-32.6
APLX	12.50	2.88	Applix Inc. (L)	3.19	-0.38	-10.5
ARSW	53.25	25.13	Arbor Software (L)	31.00	1.63	5.5
ARDT	15.88	6.63	Ardent Software	13.38	-0.13	-0.9
ARSC	36.38	19.25	Aris Corp.	27.00	-0.50	-1.8
ADSK	51.13	30.44	Autodesk Inc.	34.13	1.25	3.8
BMCS	58.50	27.38	BMC Software Inc.	49.25	-0.63	-1.3
BOOL	26.00	16.69	Boole and Babbage	20.00	-3.50	-14.9
BOBJY	20.00	6.63	Business Objects	14.31	-0.38	-2.6
CAYN	3.50	0.53	Cayenne Software Inc. (L)	0.63	-0.19	-23.1
CNTR	3.31	0.88	Centura Software	1.53	0.25	19.5
CHKPF	50.50	21.38	Checkpoint Soetware (L)	22.69	-1.31	-5.5
COGNF	34.75	17.63	Cognos Inc.	23.38	-0.31	-1.3
CA	61.94	30.63	Computer Associates (L)	38.00	4.56	13.6
CPWR	60.31	26.75	Compuware Corp.	50.75	-5.13	-9.2
CSRE	9.81	3.97	Comshare Inc. (L)	4.91	-0.09	-1.9
COSFF	6.50	1.40	Corel Corp.	1.50	0.00	0.0
DWTI	5.38	2.13	Dataware Technologies Inc.	3.31	-0.19	-5.4
DCTM	59.63	26.00	Documentum, Inc.	43.50	2.00	4.8
FILE	32.88	7.56	Filenet Corp.	24.13	-1.63	-6.3
FRTE	16.56	3.69	Forte Software	4.94	-0.25	-4.8
FTPS	4.63	1.06	FTP Software Inc. (L)	1.28	0.09	7.9
GPSI	40.00	20.38	Great Plains Software, Inc	36.38	3.88	11.9
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IFMX	11.13	4.00	Informix Corp.	6.09	-0.44	-6.7
INPR	12.19	5.63	Inprise Corp. (L)	6.50	0.00	0.0
INGR	14.19	6.40	Intergraph Corp.	7.00	0.06	0.9
LEAF	4.00	1.22	Interleaf Inc.	1.69	0.06	3.8
ISLI	21.25	11.25	Intersolv Inc.	17.38	0.38	2.2
INTU	67.94	23.63	Intuit Inc.	50.13	-2.00	-3.8
JDEC	46.25	24.88	J.D. Edwards Co.	37.75	-0.94	-2.4
TLC	32.81	10.38	Learning Co. (The)	27.88	0.19	0.7
MANU	66.38	19.19	Manugistics Group, Inc.	22.25	-0.25	-1.1
MAPS	14.25	8.38	MapInfo Corp.	12.75	0.13	1.0
MATH	4.63	2.38	MathSoft	3.00	-0.25	-7.7
MENT	13.13	8.13	Mentor Graphics	10.00	0.00	0.0
MIFGY	60.63	29.13	Micro Focus	38.75	1.75	4.7
MGXI	14.88	5.75	Micrografx Inc.	12.00	0.25	2.1
MSFT	119.63	59.00	Microsoft Corp.	106.31	-5.94	-5.3
OBJS	5.25	0.44	ObjectShare, Inc.	2.63	0.44	20.0
OMTL	15.00	3.81	Omtool Ltd (L)	4.56	-0.19	-3.9
ORCL	42.13	17.75	Oracle Corp.	25.19	-1.69	-6.3
PMTC	36.31	11.50	Parametric Technology (L)	14.19	0.44	3.2
PSFT	57.44	26.00	Peoplesoft	38.88	1.63	4.4
PTEC	18.38	8.88	Phoenix Technologies	10.88	-0.75	-6.5
PSQL	27.25	7.63	Platinum Software	20.50	-0.63	-3.0
PLAT	34.31	16.25	Platinum Technology	30.94	-0.94	-2.9
PRGS	28.13	11.63	Progress Software Corp.	22.50	0.50	2.3
RNBO	20.13	11.13	Rainbow Technologies Inc.	14.63	-0.50	-3.3
REDB	11.63	1.88	Red Brick Systems Inc. (L)	2.50	0.00	0.0
ROSS	5.40	2.00	Ross Systems, Inc.	4.06	-0.13	-3.0
SCOC	7.25	2.63	SCO Inc.	3.44	0.19	5.8
SDTI	43.25	10.63	Security Dynamics Tech. (L)	12.13	-1.44	-10.6
SSW	32.81	15.88	Sterling Software Inc.	27.00	-0.06	-0.2
SDRC	30.00	12.56	Struct. Dynamics Research	13.94	0.31	2.3
SYBS	23.63	6.13	Sybase Inc.	8.81	-0.13	-1.4
SYMC	32.63	17.88	Symantec Corp.	25.50	1.00	4.1
SNPS	47.13	29.13	SynOpsys	37.13	-1.00	-2.6
SSAX	17.63	4.00	System Software Assoc. (L)	5.53	0.03	0.6
SYSF	13.88	1.06	Systemsoft Corp.	1.44	0.25	21.1
BAANF	55.50	28.56	The Baan Co.	40.31	0.19	0.5
TRUV	5.19	0.75	Truevision Corp.	1.38	0.19	15.8
VIAS	64.50	11.25	Viasoft Inc. (L)	12.25	-0.63	-4.9
VSIO	50.88	26.50	Visio Corp.	38.50	0.91	2.4
WALK	20.44	8.25	Walker Interactive Systems (L)	9.81	-1.00	-9.2
WALL	21.88	10.13	Wall Data Inc.	12.25	-1.75	-12.5
WANG	32.25	18.63	Wang Laboratories Inc.	22.38	-0.25	-1.1
Internet					**OFF -5.4%**	
AMZN	147.00	11.63	Amazon.com	114.38	2.28	2.0
AOL	140.50	31.63	America On-Line	109.06	-10.13	-8.5
ATHM	57.25	18.00	At Home Corp.	45.75	2.75	6.4
EDFY	22.13	6.38	Edify Corp. (L)	6.38	-1.25	-16.4
XCIT	55.50	7.13	Excite, Inc.	44.44	5.19	13.2
SEEK	45.00	4.69	Infoseek Corp.	25.31	-0.19	-0.7
LCOS	107.25	16.25	Lycos Inc.	63.00	5.25	9.1
NSCP	44.63	14.88	Netscape Comm. Corp.	25.19	-4.75	-15.9
NSOL	58.00	11.75	Network Solution Inc	37.75	-0.13	-0.3
OMKT	29.13	8.88	Open Market Inc.	15.88	-0.50	-3.1
PEGS	31.00	12.50	Pegasus Systems	16.50	-6.31	-27.7
PSIX	21.94	4.25	PSINet	16.38	-1.31	-7.4
QDEK	3.40	0.50	Quarterdeck Corp. (L)	0.53	-0.13	-19.0
SCUR	15.25	5.56	Secure Computing Corp.	11.41	-1.34	-10.5
SPYG	15.38	4.06	Spyglass Inc.	10.63	-0.69	-6.1
YHOO	103.75	16.13	Yahoo! Inc.	89.50	-1.25	-1.4
Semiconductors					**UP 3.6%**	
AMD	42.75	15.19	Advanced Micro Devices	18.06	0.38	2.1
ADI	39.63	20.75	Analog Devices Inc. (L)	22.50	0.44	2.0
CRUS	17.75	8.25	Cirrus Logic (L)	9.50	0.69	7.8
CY	18.94	7.06	Cypress Semiconductor Corp.	8.25	0.63	8.2
INTC	102.00	65.66	Intel Corp.	87.25	0.88	1.0
LSCC	74.50	25.63	Lattice Semiconductor	32.88	2.13	6.9
LSI	35.81	18.31	LSI Logic Corp. (L)	20.13	-1.19	-5.6
MCRL	46.88	21.38	Micrel Semiconductor Inc.	35.88	4.94	16.0
MU	60.06	20.06	Micron Technology	34.06	1.69	5.2
MOT	83.63	48.56	Motorola Inc.	53.38	0.31	0.6
NSM	42.88	11.56	National Semiconductor (L)	14.06	1.38	10.8
RMBS	86.75	35.50	Rambus Inc	54.75	-4.25	-7.2
TXN	71.25	39.63	Texas Instruments	62.38	1.56	2.6
VLSI	38.69	12.25	VLSI Technology (L)	14.75	-1.44	-8.9
XLNX	57.13	28.50	Xilinx	42.75	4.63	12.1
Peripherals and Subsystems					**UP 1.5%**	
ADPT	54.25	10.50	Adaptec Inc.	11.69	-0.31	-2.6
APCC	34.38	22.13	American Power Conversion	32.88	0.19	0.6
ANDA	2.81	0.50	Andataco Inc.	1.13	0.06	5.9
CREAF	29.38	10.63	Creative Technology Ltd. (L)	10.63	-1.75	-14.1
RACE	10.25	0.50	Data Race Inc.	2.25	0.09	4.3
DTM	13.69	7.88	Dataram Corp.	12.94	0.75	6.2
EMC	54.19	23.50	EMC Corp.	52.06	2.13	4.3
EMLX	19.75	5.31	Emulex Corp.	10.38	2.25	27.7
ESCC	35.88	21.44	Evans and Sutherland	24.88	-0.31	-1.2
EXBT	12.75	5.63	Exabyte	6.38	0.06	1.0
IISFD	4.50	0.94	Intelligent Info. Systems	1.00	-0.06	-5.9
IOM	16.75	4.75	Iomega Corp.	5.25	-0.06	-1.2
KMAG	23.25	2.63	Komag Inc. (L)	4.19	0.81	24.1
MTSI	34.88	13.00	Micro Touch Systems Inc.	15.00	-0.75	-4.8
MTIC	17.88	6.44	MTI Technology Corp.	6.88	-0.50	-6.8
AQM	23.06	2.25	QMS Inc.	4.13	0.00	0.0
QNTM	43.25	14.81	Quantum Corp. (L)	17.56	-0.19	-1.1
RDUS	8.13	1.44	Radius Inc. (L)	1.63	-0.38	-18.8
SEG	50.50	17.75	Seagate Technology	24.06	1.13	4.9
SOS	14.00	3.00	Storage Computer Corp. (L)	3.50	0.25	7.7
STK	51.13	23.31	Storage Technology	37.13	-1.13	-2.9
TEK	48.19	26.44	Tektronix Inc. (L)	29.06	1.44	5.2
WDC	54.75	10.25	Western Digital Corp.	12.31	1.00	8.8
XRX	116.50	66.19	Xerox Corp.	102.81	-5.25	-4.9
Services					**OFF -2.1%**	
AMSY	33.38	17.63	American Mgmt. Systems	31.88	1.44	4.7
ANLY	36.50	21.50	Analysts Int l (L)	23.44	-0.56	-2.3
AUD	75.50	26.56	Auto Data Processing	65.44	-2.13	-3.1
CATP	58.38	31.00	Cambridge Tech. Partners	45.50	2.00	4.6
CEN	64.50	32.13	Ceridian Corp.	55.75	-1.50	-2.6
CDO	23.25	12.88	Comdisco Inc. (L)	14.56	-1.25	-7.9
CPU	38.00	14.50	CompUSA Inc.	18.13	-1.50	-7.6
CHRZ	53.50	25.75	Computer Horizons	33.38	-0.34	-1.0
CSC	68.88	33.63	Computer Sciences	62.25	-2.75	-4.2
TSK	49.38	27.00	Computer Task Group	31.69	-1.00	-3.1
EGGS	29.13	5.50	Egghead Discount Software	13.69	-0.75	-5.2
EDS	50.88	29.56	Electronic Data Systems Corp.	40.31	4.38	12.2
ICO	39.63	22.63	Inacom Corp.	28.50	0.25	0.9
KEA	60.94	24.00	Keane Inc.	51.63	-3.00	-5.5
MICA	29.75	10.06	Microage Inc.	15.56	1.50	10.7
PAYX	45.00	21.69	Paychex	41.00	-1.13	-2.7
PMS	46.25	27.19	Policy Management Sys. (H)	46.25	1.94	4.4
REY	24.00	15.81	Reynolds and Reynolds (L)	16.50	-0.56	-3.3
SAPE	62.00	23.88	Sapient Corp.	48.06	1.81	3.9
SCBI	14.75	6.50	SCB Computer Tech. Inc.	9.13	-0.75	-7.6
SEIC	78.88	28.00	SEI Corp.	74.25	-1.38	-1.8
SMS	86.50	47.50	Shareo Medical Systems	63.63	-5.38	-7.8
SSPE	24.25	10.75	Software Spectrum Inc.	17.63	-0.81	-4.4
SDS	40.00	22.44	Sungard Data Systems	35.81	-0.19	-0.5
SYNT	39.88	5.69	Syntel, Inc.	23.00	-1.81	-7.3
VST	17.25	7.63	VanStar Corp. (L)	8.50	-2.00	-19.0

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Retailers lead charge to end bloated software

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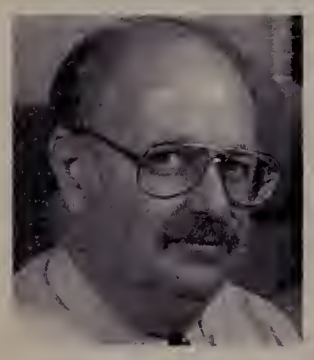
to users," he said.

Walters said Microsoft officials told him he was in the minority. The company responds to most customers, who want more features in each upgrade — and increased size comes with the package. Microsoft executives interviewed for this story echoed that attitude.

The lines of code and storage space taken up by software, whether applications or operating systems, are exploding. Microsoft's Windows 98 and Office 97 are code-heavy compared with earlier versions, which weren't exactly light.



"My problem is, I'm forced to upgrade all the time – not for functionality I want, but for features someone [at Microsoft] wanted for me."

– Roger Walters, Booz Allen & Hamilton

And Windows NT is reportedly ballooning from 16 million lines of code in Version 4.0 to anywhere from 25 million to 40 million in Version 5.0. Although Microsoft hasn't set a release date, observers and users have said they expect NT 5.0 to debut in the middle of or late next year.

That bloating poses a slew of problems. Corporate users say it uses up server and PC disk space, takes longer to install and requires added troubleshooting and staff training. It also creates a haven in which bugs can hide.

EXTRA STUFF

How much of an application's features and functions are used?

Base: Survey of 100 companies

Source: Standish Group International, Inc., Dennis, Mass.

As Windows NT has grown, so has the difficulty of troubleshooting problems, said Scott Langdoc, CIO at Raley's, Inc., a supermarket chain in Sacramento, Calif.

Raley's is rolling out an NT-based check-authorization package to its 115 supermarkets. But both the application and NT are so complex that "it takes a longer period of time to determine the source problems and corrections," Langdoc said. He said Raley's has tripled its investment in NT training from a year ago, though he declined to state a dollar figure.

A Microsoft spokesman said NT 5.0 will be thoroughly tested before its release — one of the reasons Beta 2 was postponed from June to the end of the summer [CW, July 6].

HARDWARE STRAIN

Bob Frase, CIO at United Paperworkers International Union in Nashville, said the increasing size of applications and operating systems is putting a strain on his hardware — and on his budget. He said he is still using Windows 3.1 on some machines because he doesn't want the time and expense of upgrading his hardware to handle Windows 95 or 98.

"It eats up my hardware, my time and my bottom line," Frase said.

And that's exactly what a group of frustrated retailers plan to tell Microsoft, which not only controls most desktops but also produces the lion's share of fat software.

Ken Brame, CIO at Service Merchandise Corp. in Nashville, is trying to organize an effort in two major retail trade groups — the National Retail Federation and the Association of Retail Technology Standards — to get Microsoft to scale down. Ideally, he said, he would like Microsoft to offer "lite" versions of its operating systems.

Brame said he confronted Steve Ballmer, now Microsoft's president, about the issue a few months ago at a Microsoft-sponsored retail conference in New Orleans. But according to conference transcripts, Ballmer, who acknowledged that the company "could give better guidance about hardware requirements," didn't make any promises to change.

WHAT USERS WANT

Brame, who noted that other members have tried coercing Microsoft on their own, said he hopes to rally support for a joint effort in October when both groups have their annual meetings. Microsoft's answer is that the company is giving users what they want — more and more features. Company executives said they are simply producing more code because they are offering customers more functions. And more functions are what they are going to continue to focus on.

But Lotus and Corel, which chase Microsoft in the office software market, have heard similar complaints from users. And both companies are answering the call.

Lotus' ESuite, a set of office-oriented applets that run on demand, was shipped early this year to offer users a lite version of the company's SmartSuite office software, according to Andrew Mahon, senior manager for strategic marketing at Lotus.

The application and operating system are so complex that "it takes a longer period of time to determine the source problems and corrections." –Scott Langdoc, Raley's

As for Lotus' Notes client, it has grown bigger with each release, Mahon acknowledged. But the next version, 5.0, will be smaller partly in response to user complaints, he said. The minimum install of the client will be 12M bytes, compared with the 30M bytes of the current version.

At Corel, Derek Burney, senior vice president of engineering, said the minimum install for WordPerfect is 3M bytes smaller in Version 8 than in Version 7. And Version 8 of Draw, a graphics application, was made to take up less disk space.

"It was a hugely concerted effort to make WordPerfect smaller," Burney said.

But some analysts wonder if lite software will ever fly, because an attempt in the early 1990s to handle perennial complaints about fat software didn't spark many sales.

For example, WordPerfect Corp., now owned by Corel, offered the LetterPerfect word processor, and Oracle Corp. had the Oracle Lite database.

But the skinny products didn't sell well because users feared they would lose advanced features that help them get a business edge, said Jeffrey Tarter, editor of "Softletter," a newsletter in Watertown, Mass.

"I can't think of a single lite version of any major product that has ever succeeded," he added. "It may be inelegant and sluglike, but bloatware sells."

There are other worries about lite software, said Priscilla Tate, director of the Technology Managers Forum, a user group in New York.

For example, if a full-feature package runs at headquarters but a so-called lite version resides in field offices, users may not be able to exchange files easily because formats may differ, Tate said. "No one wants to be in a backwater of technology," she said. □

Coping with bloatware

Users frustrated with dealing with bloated software have found two coping strategies: skipping upgrades or disabling features.

Bob Frase, CIO at United Paperworkers International Union in Nashville, does both. Frase said that although he has upgraded some of his PCs to Windows 95, others are still running Windows 3.1 so he can avoid the expense and time of upgrading his hardware to meet the new software's demands.

Frase also trims what new software comes in. "Most of my users don't need Access or PowerPoint," he explained. "So we try to keep them with word processors and spreadsheets. If it comes with those [other] features, we remove them. It's one less thing I have to support."

"We try to skip generations of software occasionally so we don't have to upgrade every time there's a new release," said Cam Henderson, CIO at Portland, Ore.-based Willamette Industries, Inc. "We try to stretch the life of our assets as much as possible."

But Evan Quinn, an analyst at International Data Corp. in Framingham, Mass., said users express themselves with their pocketbooks.

"Generally, folks will buy the most expensive car if they can afford it," he said. "Same goes for software. Who wants to be caught working with a function-limited productivity package? They buy it, so vendors keep making it."

— Sharon Gaudin and Kim S. Nash

CODE-HEAVY?

Lines of code in Windows software:	
Windows 3.1	3M
Windows 95	14M
Windows 98	18M
Windows NT Workstation	5M
Windows NT 4.0	16.5M
Windows NT 5.0	25M*
Other software:	
Mosaic	9,000
BeOS	700,000
MVS	2M
OS/2	2M
FAA air traffic control system	2M
Unix	12M

**Estimated*

Source: *Computerworld* and other news reports

IBM severs Olympic ties

CONTINUED FROM PAGE 1

would have to donate in terms of systems and services in return for marketing and other rights — including free tickets and hospitality packages for major IBM customers.

"From an IOC perspective, we had substantially different views on the value of our marketing rights and the value of the products and services that were to be provided by IBM [in return]," said Pascal Wattiaux, director of technology for the IOC in Lausanne, Switzerland.

Also driving the IOC's decision was its desire to have multiple technology suppliers instead of just one, Wattiaux said. Though IBM "is probably the only company that can provide products and services in all information technology areas," he said, "what we are seeking now is the synergies of best-in-class partners."

In that light, the dispute is similar to the route companies take when they run into problems with their outsourcing vendors, said Gopi Bala, an analyst at The Yankee Group in Boston.

"If you look at this as an outsourcing issue, it is not unusual that the IOC wants multiple partners," Bala said. "The mitigation of risk and the ability to partner with best-of-breed companies" are major forces behind such decisions, he said.

IBM spokeswoman Debra Gottheimer said the costs of the Games were getting too high. "The contribution that the IOC was asking us to make was significantly higher than we felt was justified from the marketing payback we could get," she said.

Salt Lake Organizing Committee officials were notified by the International Olympic Committee in Switzerland on Thursday. "The decision IBM has made obviously has us scrambling a bit," said John Krimsky, deputy secretary general of the U.S. Olympic Committee and the president of U.S. Olympic Properties, a joint venture of the USOC and the Salt Lake Organizing Committee.

Several vendors have expressed interest in sponsoring the Games since IBM's systems faltered during the 1996 Games in Atlanta, Krimsky said. Although IBM recovered strongly in Nagano, Japan, earlier this year and will work the Sydney Olympics, Krimsky said, "we kept their phone numbers."

Krimsky said the committee will seek to replace IBM's efforts — which he praised as key to the success of past olympiads — with the efforts of several vendors, each of which could handle aspects of the Olympics' IT needs. Computer chip, software and other hardware vendors have stepped forward, he said.

Both Krimsky and Frank Joklik, president and CEO of the Salt Lake Organizing Committee, said they don't know why months of negotiations between IBM and the IOC ultimately failed, but both indicated that IBM's resources were stretched increasingly thin as the Olympics expanded in scope.

IBM was widely criticized in Atlanta for having slow, buggy systems in place that cost $45 million to implement but that gave faulty event results to the media. It recovered in Nagano, but at a considerable cost — an estimated $100 million for systems and event sponsorship fees. The company's costs at Nagano helped bring down its first-quarter earnings a few pegs, although Chairman Louis V. Gerstner said in April he felt it was worthwhile.

IBM has been a major contributor to the Olympics since the 1960 Games. □

IT 'out-tasking' on the rise

CONTINUED FROM PAGE 1

Securities LLC expects big outsourcers such as EDS to post earnings increases of between 8% and 10%. Smaller and mid-size service providers, by contrast, are expected to grow roughly 30% to 50%, according to UBS.

As a result, manager wannabes may need to brush up on their negotiation and relationship skills.

Today, the average company spends one out of every five IT dollars on outside services, according to a study of 100 manufacturing and service companies conducted by The Hackett Group in Hudson, Ohio. And the average IT manager frequently is responsible for dozens of vendor relationships in addition to in-house staff.

Russ Lewis, chief information officer at The Jeffries Co., a New York financial services company, is a prime example.

Lewis, who runs an in-house IT group of 125, has contracts with four vendors for tasks that include running the corporate data center and managing the company's year 2000 project. All told, Lewis estimates he spends about 35% of his time managing contracts, which he considers an indispensable ability for today's CIOs.

"The CIO's skill set is changing. In today's world, it's more important to know how to manage vendor relationships rather than technology," Lewis said. "I feel like me and my management team are like the guys in the circus, [balancing] the plates on the long poles. You try your hardest to keep them all in the air and not have them break."

The Jeffries Co.'s Russ Lewis: "It's more important [today] to know how to manage vendor relationships rather than technology"

Meanwhile, at Honeywell, Inc., managing service vendors has become so important that the Minneapolis-based company has identified supplier management as a core competency for all IT managers, said Allison Everett, vice president of information systems. One big reason is that Honeywell has adopted a strategy of out-tasking virtually all IT operations and maintenance chores, she said.

Plowing through and choosing from the legions of new and changing vendors is typically a manager's first challenge. That is especially true in the desktop management market.

"Some vendors that were previously considered second- or third-tier players are now becoming first-tier players in that niche," said Harry Wallasea, an outsourcing contract expert and president of Aligne, Inc. in Malvern, Pa.

Specific examples include Vanstar Corp. in Atlanta, Inacom Corp. in Omaha and Entex Information Services in Rye Brook, N.Y. All of those companies are increasingly turning up as primary vendors on outtasking contracts.

Before, under more traditional mega-outsourcing deals with the Big Three, the trio of desktop vendors played a subcontractor's role only.

But now "there's a major shift away from the Big Three," Wallasea said.

David Tucker, CIO at Seton Healthcare Network in Austin, Texas, is part of that shift.

Late last year, for example, Tucker contracted Boston-based Keane to manage Seton's year 2000 project. In a previous CIO position, Tucker out-tasked network management and desktop management services to Comdisco Corp.

"I kind of stay away from the big guys," Tucker said. One reason is that many other niche companies specialize in desktop support and other services he requires. And increasingly, there are service firms that focus more narrowly on desktop support within the health care industry, he added. □

IBM, Sun deliver JavaOS for Business

By Carol Sliwa

TOUTING THEIR NEW operating system's central management capabilities, IBM and Sun Microsystems, Inc. last week delivered on schedule their jointly developed JavaOS for Business.

But it will be months before customers can find any network computing devices equipped with the new Java operating system. Sun's JavaStation and IBM's Network Station computers, for instance, won't ship with JavaOS for Business until early next year.

"It's hard to get excited about stuff that's tied to network computers, since very few [companies] are using them," said David Smith, an analyst at Stamford, Conn.-based Gartner Group, Inc.

IBM and Sun said they will target JavaOS for Business at vertical industries such as banking, insurance, finance, manufacturing, health care and government.

Those industries stand to gain the most benefit from centralized management because many of their employees use only a few applications. Those applications could be stored and remotely managed from a central server, eliminating the need for information systems staffers to install and update software on their desktops. Whenever users boot up their machines, the latest applications would be available for download.

Other JavaOS for Business features include the following:

- Tools and application programming interfaces for server-side management.
- A device-driver interface that can be used for cross-platform development.
- Support for Java Development Kit 1.1.4, Windows NT and Sun's Solaris servers.

With industry heavyweights IBM and Sun supporting the operating system, developers are more likely to target it for writing applications, said Mike Gilpin, an analyst at Cambridge, Mass.-based Giga Information Group.

"That gives it a heck of a lot better chance," he said, "but it's still only relevant to companies that want to use [network computers], which is still a relatively small population." □

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The Back Page

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Dispatches & images from the fringes of the electronic frontier

SUITED TO A 'T'

Calla Bay, the largest made-to-order swimwear maker, has launched a Web site (*www.callabay.com*) that lets women design and buy swimsuits online. Shoppers enter their measurements and use the Create-a-Suit system to mix and match fabrics, colors and styles on a three-dimensional computer model. The suit is shipped in about two weeks.

KERRI SMITH

These Virtual Binoculars zoom in on details in virtual-reality scenes or computer simulations that otherwise would be blurry pixels. The immersive display device, developed by N-Vision, Inc. in McLean Va., won an industrial design award.

Patent watch

Recently issued U.S. patents (number, inventor/assignee, date)

Fuzzy logic controller for elevator dispatching. The system make use of real-time and historic data to dispatch elevators so the wait at the lobby and upper floors is minimal. (5,786,551, Otis Elevator Co., Farmington, Conn., July 28)

Interactive exercise equipment with virtual-reality displays. The steerable exercise machines can be networked so people can participate in virtual bicycle races or basketball games. (5,785,630, Tectrix Fitness Equipment, Inc., Irvine, Calif., July 28)

Secure system for authorized reprogramming of onboard vehicle computer systems. (5,787,367, Chrysler Corp., Auburn Hills, Mich., July 28)

Source: MicroPatent (*www.micropat.com*)

THE FIFTH WAVE

BY RICH TENNANT

E-Mail Rich Tennant at theswave@tiac.net

Inside Lines

Well, *somebody's* not clear on the concept

Doesn't Novell know that major products are supposed to be *late*, not early? The Provo, Utah-based company plans today to announce that its next-generation NetWare 5.0 will ship in September — a month ahead of schedule. The new version, which will include improved Novell Directory Services, native support for TCP/IP, a faster Java engine and embedded Internet security capabilities, originally was supposed to arrive about the same time as Windows NT 5.0 — which is now slated to show up . . . well, sometime late next year. Or the year after that. Maybe.

Still a few kinks in the system

Search technology newcomer Direct Hit, which says it will launch later this summer in partnership with some major search engines, says it has come up with a way to display the 10 most relevant sites per search instead of the reams of responses some competing engines produce. But when we tested the beta site, seeking information on "stocks," it pulled up hits such as "Adult XXX Sex," "Silk Stockings Erotic Hardcore Porn" and "XXX Adult Sex." Direct Hit Chairman Gary Culliss explained that queries are stripped of suffixes such as "s" and "ing" before being processed, which results in "stocks" and "stockings" turning into "stock." "We'll have a fix for this soon," he says.

Now *that's* major re-engineering

You knew installing big packaged applications could mean big changes in business at your company — but in whole towns? Some quirks in PeopleSoft's software made Corning switch payday for its hourly employees from Thursdays to Wednesdays, and the manufacturer tried to make sure changes also took place in the towns where its plants are located, according to Rick Beers, one of the leaders of Corning's PeopleSoft project. "The banks staffed up on Thursdays, and so did the bars and restaurants," Beers says.

Do you want to play a game?

Inacom, the systems integration giant in Omaha, offers visitors to its World Wide Web page (*www.inacom.com*) a chance to play TechnoChallenge, a game it developed to test the skills of potential job applicants. The quiz — a series of multiple choice questions — will never replace Doom, Tetris or even Solitaire. But according to Eva Fujan, Inacom's vice president of technical recruiting, players who make it to the game's third level of difficulty are worth interviewing.

There goes the neighborhood

Microsoft plans to build a Silicon Valley campus next summer, right down the street from Sun Microsystems and Netscape in Mountain View, Calif. The 32-acre site will consolidate Microsoft's existing nine offices in the area — and, presumably, it will house the Microsoft pranksters who erected a car-size Internet Explorer logo on Netscape's front lawn last fall the morning after Microsoft introduced Explorer 4.0. No doubt the Microserfs can expect a friendly knock at the door and a big "Howdy, neighbor" from both Netscape and Sun after the move. However, they might want to consider testing the welcome-wagon pie before taking their first bite.

Even reformed hackers can still spread viruses. At last month's Black Hat Briefings in Las Vegas, Mark Fabro — who's so paranoid he won't talk about his hacker days or even reveal his old hacker handle — was slated to speak at the show but discovered his system crashing because of a virus he somehow failed to avoid. But it wasn't electronic sabotage. Fabro, director of risk assessment at Secure Computing in San Jose, Calif., came down with the flu and had to fly home. News editor Patricia Keefe is hoping you'll send a healthy dose of news tips and tidbits her way. E-mail her at patricia_keefe@cw.com or call (508) 820-8183.

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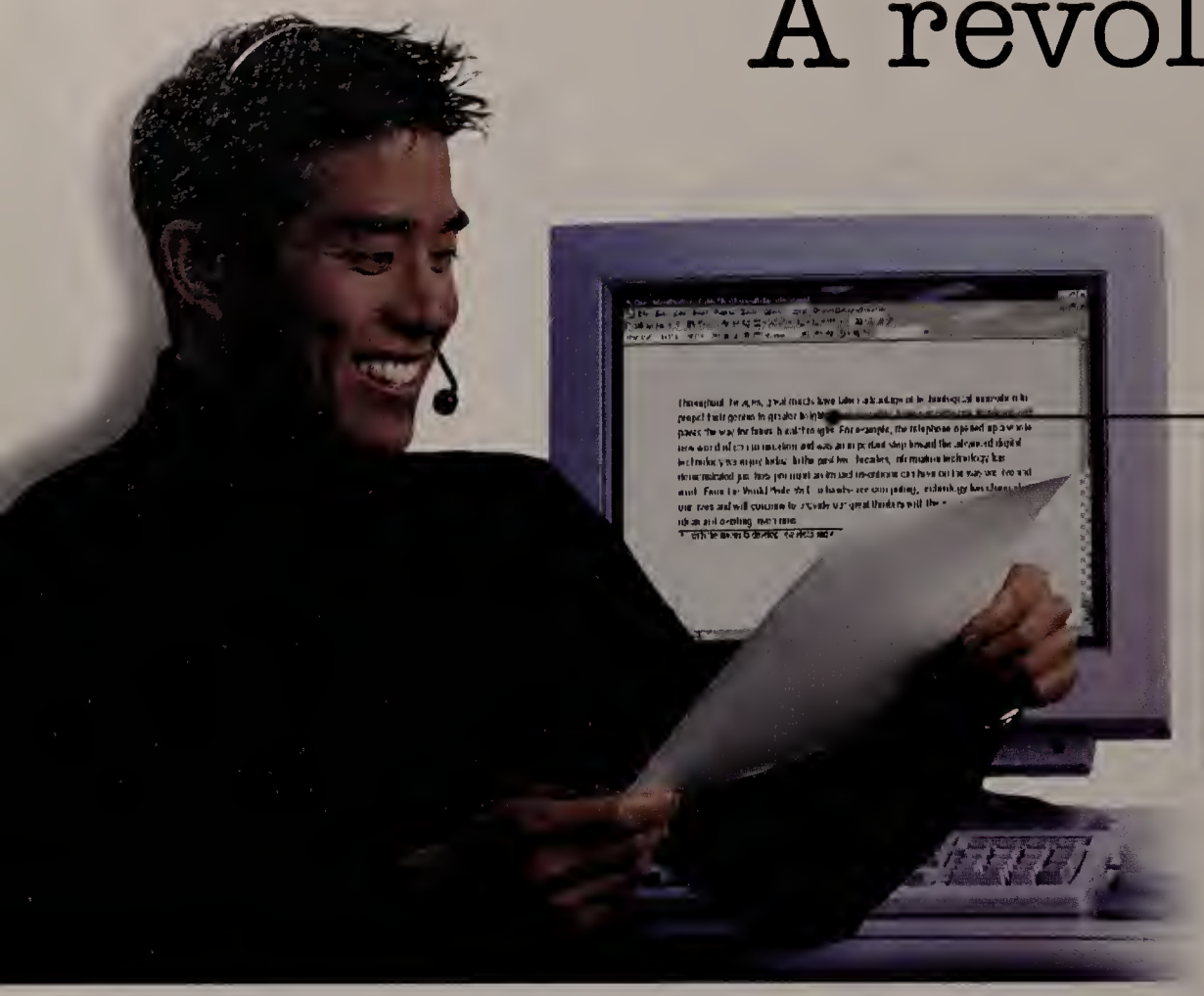

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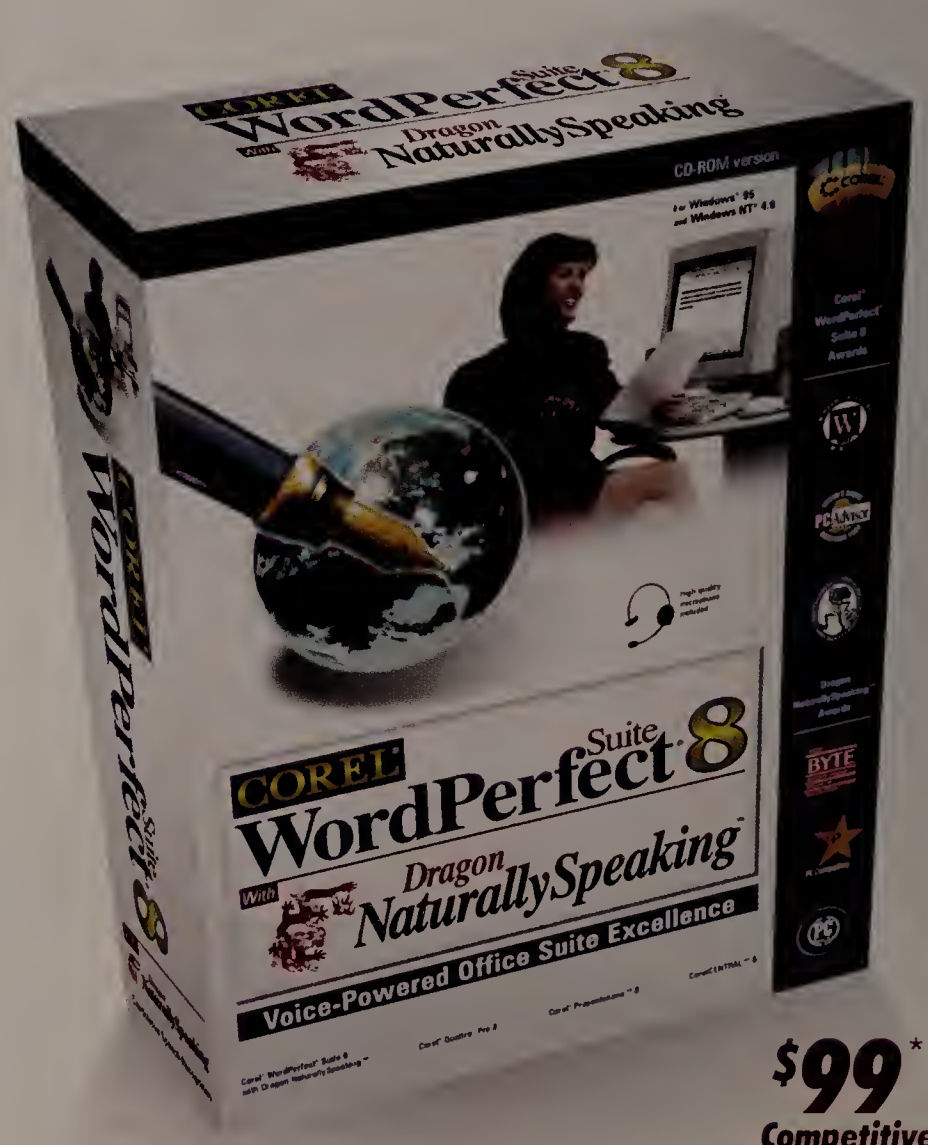

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